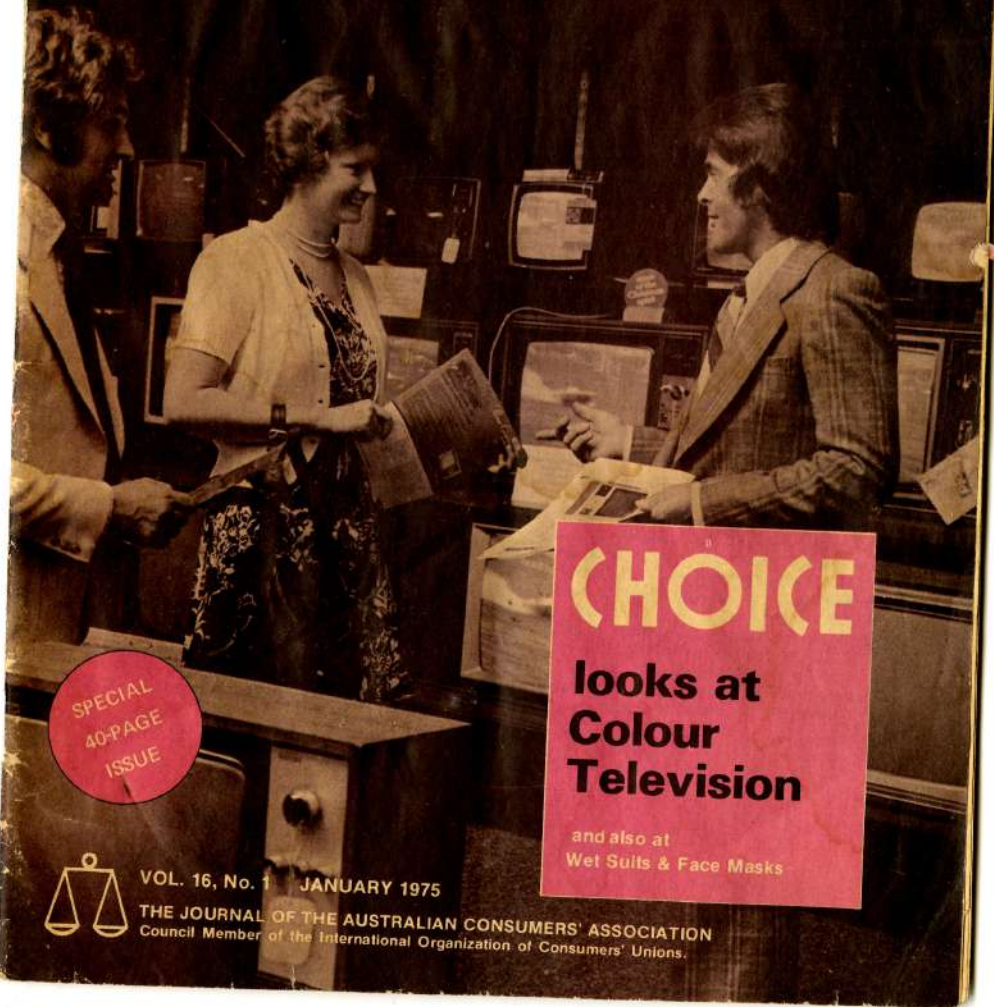


COLOUR Television



SPECIAL
40-PAGE
ISSUE

CHOICE

looks at
**Colour
Television**

and also at
Wet Suits & Face Masks



VOL. 16, No. 1 JANUARY 1975

THE JOURNAL OF THE AUSTRALIAN CONSUMERS' ASSOCIATION
Council Member of the International Organization of Consumers' Unions.

School Uniforms

There have been arguments for years about the desirability or otherwise of compulsory school uniforms. We do not intend to become involved in those disputes, but we are concerned to see that goods which are compulsorily bought are of acceptable quality.

The news that the Standards Association of Australia is at present preparing a Standard of quality requirements for school and college wear for boys and girls is therefore very welcome. The Interim Commission on Consumer Standards asked that the work be given urgent priority, and a draft of the proposed Standard has been circulated to interested parties for comment. ACA is represented on the Committee compiling the Standard.

The draft covers normal school wear and sports uniforms. It states that school wear should have both size and care labelling in accordance with a number of Standards already in operation, and requires that school uniforms shall comply with Standards covering the size of finished garments. Those Standards and the proposed one are not mandatory; compliance with them is at the option of clothing manufacturers.

There are also requirements in the draft covering workmanship, fabric and elastic quality, seaming and laundering properties. Detailed provisions are then listed for the various items of clothing in uniforms.

ACA has objected to a number of the provisions of the draft. Our objections are mainly on the inadequacy in defining the quality requirements. The draft includes no *specific minimum quality*

requirements for the school wear. Such minimum requirements should be as detailed as those which already exist in the draft for the types of seams and stitching to be used. As the ultimate Standard will become the reference source, it has to define and inform of minimum quality requirements. These minimum requirements are known, being specifically listed in a very detailed American Standard. The proposed Standard should specify: most suitable fibre composition; details of most suitable fabric structure, lining, trimmings, buttons and zippers; minimum breaking strength for woven fabrics and seams; minimum bursting strength for knitted fabric; maximum shrinkage; colourfastness; and most suitable types of sewing thread.

This list is only an indication of what should be, and is not, detailed in the draft. At the moment, the draft says that "all fabrics used in the manufacture of school wear shall be free from imperfections and blemishes that may affect appearance or serviceability". This "quality" requirement does not help manufacturers, distributors or consumers.

If the Standard is carefully compiled on a basis of clearly defining minimum quality requirements, then the quality of workmanship desired will be within the capabilities of textile and clothing manufacturers. The Standard will then not have to state that "production and workmanship shall be in accordance with good trade practice". Rather, the Standard *will* be the basis for good trade practice and production.

Choice

January, 1975

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Buying a Colour Television Receiver

A report giving detailed guidance on buying a colour television set

Colour television test transmissions started on 7 October, 1974, with colour test patterns. In the first test phase from 19 October to November, four hours a week of outside live broadcasts were transmitted. This has been increased until by 11 January, 1975, a maximum of eight hours a week of all broadcasts will have been transmitted. Restrictions on transmission cease in March 1975, though for technical reasons some areas in Australia will not have full colour transmission until somewhat later dates.

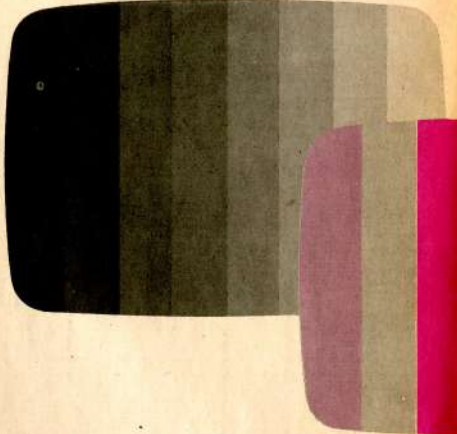
In buying a colour television receiver consumers face a difficult problem. A colour television set is one of the most complicated pieces of equipment in the household, and the situation in Australia is further complicated by some earlier decisions made when our basic television system was introduced. These resulted in Australia's use of some channels not used overseas. In fact, in Europe these channels were used for FM (frequency modulation) sound broadcasts and other services. It is likely that some of these earlier decisions will be reversed, at least partly, and some of the channels concerned (0,3,4,5,5A) may eventually be allocated to other services. This means that existing sets may have to be modified to give coverage of the new frequencies where these stations are no longer to operate. This affects both monochrome (black and white) and colour television.

In addition, consumers have been supplied through the media with advice and warnings about colour television sets, and unfortunately some of the information stresses problems which will apply only in unusual situations. In this report we discuss many of the problems which must be considered when buying a colour television set. At the end of this report details are given of the sets currently available on the market in Australia.

CHOICE OF SETS

Size

The first factor to consider in a set is the size, usually indicated by the picture tube's diagonal measurements. Biggest sales in Australia have been of large black and white sets and it is expected that this attraction of big screens will carry over into colour —



if consumers can afford it. It is a simple fact that size affects price so that you pay more for large sets. Almost all locally made sets are 66 cm (26 inch) or 56 cm (22 inch) models. For smaller sizes it is generally more economical to import Japanese or European sets. Some of the larger sets are also imported.

You cannot make a direct comparison between the size of a colour television picture tube and the size of a black and white picture tube. A 66 cm (26 in) colour tube has a mask around the outside border which prevents the use of this area. As a result the picture received is closer in size to that received with a 61 cm (24 in) black and white tube (see diagram).

Apart from price, and whether a set of a given size will fit into your room furnishing arrangement, the size of a television set determines the viewing distance. Hence, indirectly, it also determines the number of people who can view the set. Generally a viewing distance of about six times the tube size is

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white (monochrome) television.

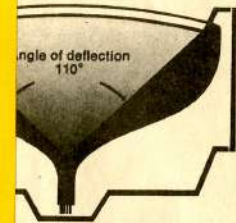
Picture quality

The next factor to consider is the picture quality. This is affected by many variables.

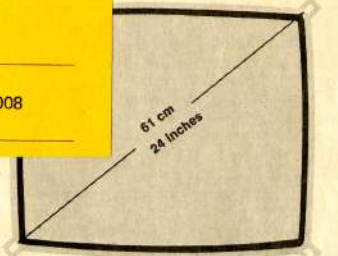
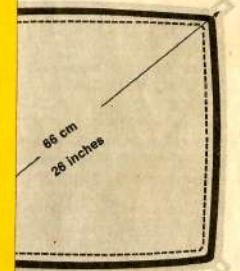
Sensitivity

The first of the factors is the sensitivity of the set and the magnitude of signal delivered to its input terminals. If the signal is too small and/or the set is

The usable area of a colour picture tube is less than that of a monochrome picture tube. As shown, a 66 cm colour picture tube is approximately equivalent to a 61 cm monochrome picture tube.



made with a larger angle of deflection (90°) and as a result the



Buying a Television

A report giving details

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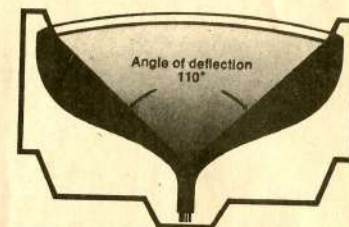
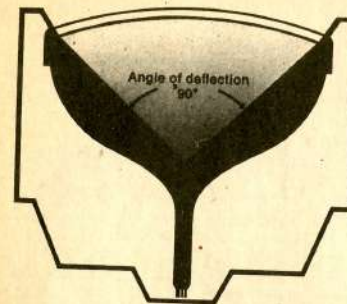
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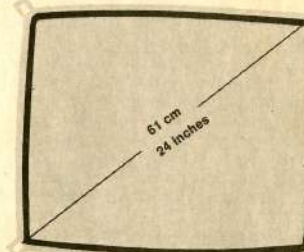
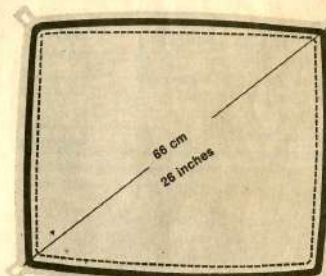
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Modern picture tubes are made with a larger angle of deflection (110°) than earlier tubes (90°) and as a result the set is smaller in depth.



reasonable, although some people prefer to be closer to the screen. For a 66 cm set this suggests a viewing distance of about four metres or approximately 13 feet. A family group of from four to six could comfortably view the image on such a set, and it would obviously be suitable only for a reasonably large room. At the other end of the range a 25 cm (10 inch) set would be suitable for a small room, a closer viewing distance and for only a few viewers. Exactly the same considerations apply for black and white (monochrome) television.

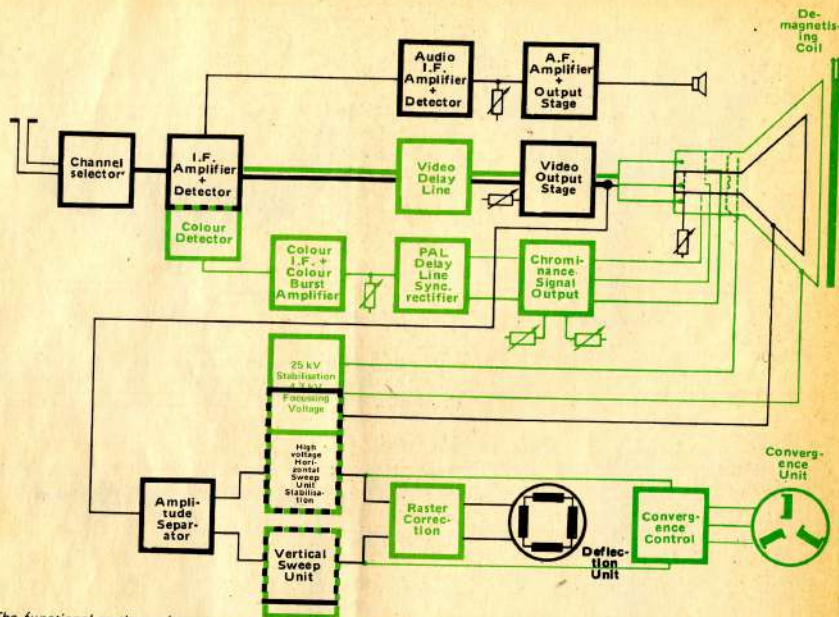
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The usable area of a colour picture tube is less than that of a monochrome picture tube. As shown, a 66 cm colour picture tube is approximately equivalent to a 61 cm monochrome picture tube.



The functional sections of a colour television receiver. Sections shown in black indicate units used in a monochrome receiver and the colour sections are the additional items which have to be added for colour reception.

not sensitive enough, the picture produced will be noisy — that is, with snow-like patterns on the screen and poor colours. Good colour rendition with a colour television receiver requires about the same strength signal as is needed for the same set when receiving monochrome. If a noisy picture is received on a black and white set now, trouble will almost certainly occur with colour. A better aerial (either of higher gain or using a taller mast or both) or a more sensitive set may improve the situation. As it is difficult to obtain information about the sensitivity of a set, there is no substitute for trying a set in place before you actually buy. Alternatively, you should try to buy a set on the condition that a suitable picture is received on it when installed.

Particular problems occur if you are a long way from the transmitter, or are shadowed by a mountain, hill or high building. The lower channels usually propagate better over hills or obstructions, so you might find better reception on the lower channels. Most aerials also deliver a stronger signal to the receiver on the lower channels.

Colour television sets vary a great deal in sensitivity (by a factor of at least ten to one), so any

problems caused by sensitivity may possibly be remedied by the choice of a more sensitive set.

Ghosts

A ghost is a second image, slightly displaced from the main picture. Contrary to some published reports, ghosts are no more objectionable in colour than in black and white. Ghosts are caused by receiving the same signal at slightly different intervals of time and may be caused, for example, by reflections from large building structures. Usually ghosting is reduced or removed by the use of a more directive aerial and by careful attention to the aerial lead-in. It is quite likely that there will be an increased use of shielded co-axial lead-in cables in the future instead of the present more common twin wire ribbon lead-in which is not shielded. Your set should have provision for both, which means that it should have both 75 ohm (co-axial input) and 300 ohm (twin ribbon input) aerial input terminals.

Picture stability

Television sets have two controls to deal with picture stability, a vertical hold and a horizontal hold. In

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modern sets these are automatic and factory preset adjustment is all that is required. This removes a lot of "fiddling" to get a stable picture and is a decided advantage. Of course, an adequate signal is also needed so that the automatic controls can take over to give a stable picture. All sets will do this on a much lower signal than is needed for good colour rendition, so that a properly constructed set receiving a weak signal could give a stable picture but no colour rendition.

Resolution

When you look at any picture, a major factor governing picture quality is the resolution of the system. Basically this is merely a measure of the amount of fine detail the picture faithfully reproduces. If all fine detail is accurately reproduced the picture is said to have high resolution.

Although colour television sets will receive black and white transmission, there is a slight loss of resolution as compared with an all black and white set. Slightly lower resolution for colour does not seriously affect a colour picture, but if carried too far it would matter. Therefore you should particularly look for good definition of edges between areas of equally bright colour. In sets where the resolution for colour is not as high as it should be this can be identified by anyone who looks at a picture or a test pattern.

A complicating factor in colour television is the alignment of the red, green and blue patterns on the screen. The three electron beams from the picture tube must accurately land on their own particular dot pattern on the screen (red, green or blue respectively) and if they do not, the resolution of the picture is affected.

A series of adjustments, the convergence adjustments, ensures that this alignment is carried out on the whole of the picture tube screen. If the convergence adjustments are incorrect, coloured fringes occur around objects, particularly if they are in the outer borders of the screen.

All that is needed to judge a colour television picture is the same approach as you would use viewing any coloured picture — you look for truthful rendering of colours and clear definition of detail.

Magnetic fields and automatic degaussing

Any magnetic fields will affect the alignment of the three electron beams which must accurately land on the red, blue and green dots that make up the picture tube screen. Magnetic fields may be produced by nearby iron objects, or by parts of the set which have become magnetised during road transport or in the moving of the set about the room. Most modern colour sets (particularly the larger sets) incorporate automatic degaussing which operates every time they

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are switched on and demagnetises any magnetised parts. The degaussing fields gradually reduce over a period of about ten minutes. It is important not to move a set while it is operating, as the degaussing process will not operate again until the set is first switched off, allowed to cool, and then switched on again. Some smaller sets may not incorporate automatic degaussing.

Locating a set near large masses of iron is also to be avoided. When first installed a set may need more extensive degaussing than is carried out by the internal coils; this is done by the technician installing the set using external coils.

SPECIAL PROBLEMS WITH COLOUR

A colour television picture is affected by the performance of the whole system from the transmitter to the receiver. In particular, a region of the frequency band which is not critical in black and white sets becomes very important. This is the region near the colour carrier frequency (about 4 MHz).

This is one of the basic reasons why transmitters, microwave links and the like must be reassessed for colour and why it may take some time for all facilities to be converted for correct colour transmission. In picture reception this is also important and manufacturers of both receivers and receiving aerials need to ensure that the performance of their products is correct in this part of the received band. Poor performance in this region may be recognised as it will also affect picture resolution and show up on the edges of colour contrasting areas, particularly for moving objects where it may cause a coloured image to be displaced from the original.

PAL SYSTEM

The colour system adopted in Australia, the PAL system, incorporates a special method of reducing the effect of small errors in the transmitter-receiver system which would normally produce annoying colour errors. This system is particularly effective, and is called the Phase Alternating Line (hence PAL) system. To be effective, receivers must incorporate an ultrasonic delay line. These are known as PAL-D receivers and are the most effective of the PAL receivers. To get over patent problems some sets are made using less effective approximations to this system. However, in view of Australian Government negotiations which will allow the import of full PAL-D receivers in the smaller sizes (46 cm and below), all or nearly all colour sets sold in Australia should be full PAL-D receivers. However, smaller sets will not be available in the early stages.

CHANNEL SELECTION

The television channels used in Australia may be located in either the VHF (very high frequency) band or the UHF (ultra high frequency) band. All existing

channels are at VHF and range from Channel 0 (45 MHz to 52 MHz) to channel 11 (215 MHz to 222 MHz). Sets for sale in Australia should be able to receive all 13 VHF channels. However, it is very likely that in the future some VHF channels will be eliminated in the process of introducing FM (frequency modulation) sound broadcasting. Certain types of channel selector are readily modified; others may have to be replaced completely for changes in channels.

Later, after 1976 at the earliest, it is likely that some UHF channels (that is at a higher frequency) will be introduced, initially so that local areas where reception is poor can use a supplementary UHF transmitter to give adequate reception.

Most sets sold in the early stages of colour television transmission in Australia will *not* have UHF coverage. To change such sets over it will be necessary to remove one of the VHF channels and add (probably externally) a UHF channel selector, which will feed into the set through the removed VHF channel. Alternatively, the whole channel selector will have to be replaced.

The present policy is that by late 1976 all sets sold in Australia will be required to be able to receive both VHF and UHF channels. If you buy a set before then it would be an advantage if it can be readily (and inexpensively) modified to receive UHF channels. For sets designed with this in mind the cost of conversion at a later date is likely to be in the range of from \$50.00 to \$110.00 (at today's costs) and the conversion device can be inside the set. In other sets it may be more expensive and involve an external adaptor.

The consumer is unable to tell that a set is designed for this modification and must rely, for advice about it, on what the manufacturer is prepared to tell him.

ULTRASONIC AND TOUCH TUNING

All colour television sets that we have seen use a manually adjusted rotary switch system to change channels, as do most black and white sets. Other methods can be used. In some de luxe sets sold overseas a remote channel selector, operated ultrasonically, is used. In other sets, particularly those with both VHF and UHF channels, a "touch tuning" system is used, in which a numbered panel position is merely touched with a finger and the appropriate channel is selected. This method is particularly useful with VHF and UHF channels, as there are 13 VHF and 32 UHF channels which can be used in Australia. In any one area only a few of these will be needed. The manufacturer, however, must cope with all possible areas, and this method makes the problem simpler. Touch tuners use an electronic method of tuning into channels rather than mechanical methods. Touch tuners are likely to be used more often in later

8

sets (after 1976) when full VHF and UHF coverage will be required.

ELECTRICITY SUPPLY

Most electricity supply systems in Australia provide a 50 Hertz, 240 volts, AC supply (250 volts in some areas). However, if you live some distance from the substation or distribution transformer, your supply may be lower, and if you live close it may be a little higher. Many of the colour television sets of newer design incorporate automatic regulation to cope with quite a range of supply voltage (from 200 volts to 265 volts). This is a definite advantage, particularly if you know that you live in a difficult power supply area. Information about the appropriate supply voltage range for a receiver will be given in the specifications for the set.

ELECTRICAL, FIRE AND RADIATION SAFETY

Australian electrical safety standards are high. Although we do have a good safety Standard for television sets (AS 3159-1972 Electric Sound and Vision Equipment), it is not compulsory for television sets to conform to it. ACA is pressing the Australian Government to require compulsory adoption of the Standard — and most Australian made sets do in fact conform. Imported sets do not necessarily conform, but some might.

Sets which conform to AS 3159 may indicate this in two different ways. If they have been submitted to the Standards Association of Australia for approval they will bear an approval mark or stamp with the SAA symbol and licence number. Alternatively, the manufacturer may claim compliance (without submitting for approval) and indicate accordingly, either in a label on the set, or in the accompanying literature, or perhaps the retailer may indicate compliance.

This Standard, in addition to electrical safety, includes safety requirements for limits to X-ray emission and flammability of components. Solid state sets are unlikely to have excessive X-ray emission, which, in some early sets sold in the United States of America, came from wrongly adjusted high voltage power supplies using thermionic rectifier valves.

The strong initial demand for colour television receivers may place a strain on Australian manufacturers with the result that many sets will have to be imported. If you decide to buy one of these imported sets it is important to check that it carries a "certificate of suitability" number issued by the Electricity Authority in your State.

INTERFERENCE

Television sets, including colour sets, can produce interference to other radio and television receivers. There are two types of problem. First, the

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interference can be sent back down the power mains to a distant point and affect reception of other sets; secondly, the television set may actually radiate through space signals which can be picked up by, and interfere with, neighbouring sets.

Again there is a Standard, which is not compulsory, relating to this problem (AS 1053-1973 Radio Interference Limits and Measurement for Television and Radio Receivers). In fact, compliance with the Standard covering radio interference is not compulsory in Australia. This is a matter of concern to ACA and one which we hope will soon be rectified. Australian made sets may be expected to conform to the requirements of this Standard, but imported sets might not.

Another problem is raised by our choice of certain standards in setting up our television system. In Australia we use an intermediate frequency (centre frequency of the main amplifier of the receiver) of 36.0 MHz or 36.875 MHz. In Europe the frequency used is 38.9 MHz. As a result any set with the European frequency of 38.9 MHz used in Australia could cause problems on certain channels. The problem occurs only in certain areas, where a set tuned to receive one channel can produce interference on another channel. This is a hypothetical problem about which little experimental evidence is available. However, as more sets are used it could conceivably give trouble. The most likely areas where it could occur are Spencer Gulf North (GTS4 and ABNS1), Southern Downs Queensland (SDQ4 and ABSQ1), Ballarat-Bendigo (ABEV1 and ABRV4), Armidale (ABUN4 and NEN1), Glen Innes (ABUNO and NEN3), and GYMPIE (ABNO4 and WBQ1). There are possibly others. Originally the Australian Broadcasting Control Board intended to require, on sets which could cause a problem, a label stating: "This receiver employs an intermediate frequency of 38.9 MHz and must not be used in areas where transmissions on any of the following combination of channels are available for normal reception — 0 and 3, 1 and 4, 2 and 5." However, as things stand, imported sets will not be required to have this label if the radiated signal is below a certain level. Sets with this intermediate frequency are not recommended by either the Australian Broadcasting Control Board or ACA.

SOUND QUALITY

As many of ACA's tests on monochrome receivers have shown, the inherent high quality of the television sound system is frequently not achieved because of the poor quality of the sound system that is built into the set. Television uses frequency modulation (FM) for the sound system. With a well designed receiver the quality should approach the best possible for audio reproducing equipment. However, too often the speaker in the TV set is too

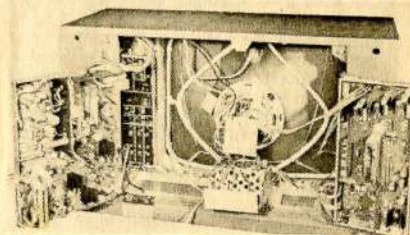
small or of too low a quality to reproduce a wide range of sound frequencies properly. Similarly, the audio amplifier may have inadequate performance (high distortion or low power output or both). In buying, you must realise that a set with large front mounted speakers is better able to produce quality sound than a compact set with a small speaker — particularly if it is side mounted. Portable sets are at a disadvantage in this respect.

A useful feature in any television set is provision for an earphone connection. This is particularly valuable for deaf people, as high sound levels can be produced at the listener's ear without deafening others in the room. Use of this facility usually inactivates the speaker in the receiver. Another handy feature is an output socket which can be used for a tape recording the sound of a transmission. In this case use of the socket should not inactivate the speaker.

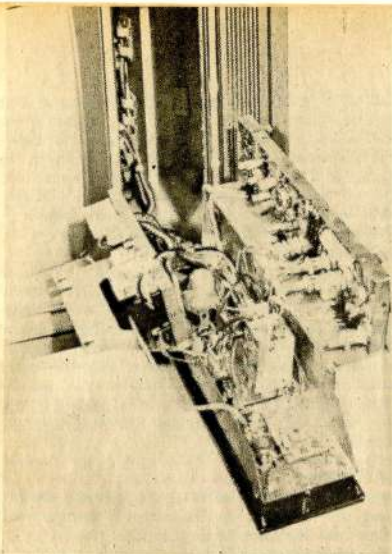
SERVICING

Everyone connected with the television industry agrees that servicing will be a major problem with colour television sets. Modern sets are all solid state, using semiconductors instead of vacuum tubes for all functions except the picture tube. Colour television sets are also complex. The number of components is much greater than in a monochrome set. Luckily, modern integrated circuits perform many critical functions in the set automatically, without need for adjustment. However, even though faults should be rare, they will be more expensive to fix. For one thing, there is a tendency to package many items together in one replaceable unit. This speeds up servicing and reduces labour costs, but it increases component costs. There will, moreover, be more parts for the serviceman to carry, particularly if he services a number of brands.

The newer sets are designed with ease of servicing in mind — swing-out panels which are easily accessible and with critical adjustments brought to the front of



A Kreisher receiver (59-1 chassis) with panels swung out for servicing. Degaussing coils are located around the outer border of the picture tube.



A Kralster receiver with servicing panels swung down for adjustment of colour convergence. The technician can see the picture while making adjustments.

the set so that the serviceman can simultaneously inspect the picture and adjust the controls.

A good guarantee helps, but the usual terms are 90 days on the set and 12 months for the picture tube, which is rather a meagre guarantee for so expensive an item. Only time will tell whether the frequency of repair of modern colour sets has really improved as the manufacturers claim. Consumers can only hope that it has, for a repair call is likely to cost between \$25.00 and \$50.00 for even a minor fault if it requires the replacement of a circuit module.

CONVERSION OF BLACK AND WHITE SETS

In spite of claims to the contrary, conversion of existing black and white sets to colour is possible, but in ACA's view it is impracticable. It is rather like installing a V8 engine in a Model T Ford, and fraught with dangers of similar magnitude. It is unlikely that any major manufacturer would consider such a conversion. The conversion of a monochrome set to colour should not be undertaken as it is not a prudent investment of money. The Royal Melbourne Institute of Technology has plans to arrange for the manufacture of a conversion kit, but there will be many problems with such a set including problems with servicing.

BRINGING A COLOUR TELEVISION SET FROM OVERSEAS

There are problems in bringing a colour television set into Australia from overseas. First, as it is specifically

stated in the Customs information booklets, duty is payable (35 per cent duty and 27½ per cent sales tax). Secondly, unless it is one of the new sets made specifically for Australian requirements, it is impossible to buy a set overseas which will work without modification in this country. Such sets are not available at the moment in any overseas duty-free ports, and there is some doubt as to whether they will be. Modification of a set to Australian requirements is possible, the difficulty varying with the type of set. Sets made in the United States of America and the United Kingdom are unsuitable, due to the very different standards used there. Some European sets require the least change, provided that they are of PAL-D type, and will receive some channels without modification. However, for them to receive all channels some modification will be needed. Generally speaking, in view of the high labour costs for work of this nature and the fact that you will own an "orphan" set with no service details, spare parts or other support by a local manufacturer or distributor, you would be best advised to buy your colour television set in Australia — if you decide that you want one at all.

RENTING A COLOUR TELEVISION RECEIVER

At the moment thousands of Australians are hiring black and white television receivers for about \$10.00 per month. The major rental companies have set their colour set rental rates at from about \$30.00 to \$35.00 per month. There are several reasons for considering rental: some consumers are able to claim the cost of rental as a tax deduction and the cost of repairs (which is unknown for colour sets yet) is borne by the hire company. A major factor to many people is that we cannot yet estimate what the price of buying colour sets is likely to be in two or three years, nor do we know which models will be available then. On the other hand, others may be swayed by the high cost of renting and feel that purchase is a wiser course since, in two or three years' time, rental payments may be enough to have paid for a set. When buying a set on credit you should bear well in mind that interest payments will add substantially to the cost.

CONSUMER QUESTION AND ANSWER CHECKLIST FOR BUYING COLOUR TELEVISION

1. Q What make of set should I buy?
A Choose one from a large manufacturer or importer with adequate servicing, technical back-up and spare parts and supplies.
2. Q Is it better to buy an imported or an Australian manufactured set?
A Locally manufactured sets are certain to comply with Australian manufacturing requirements. So will most imported sets.

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Many retailers will sell locally manufactured sets in large sizes and imported sets in the smaller sizes. Check that your set conforms with the Standards AS 1053 and AS 3159.

3. Q What size set should I buy?
A First decide how much you can afford to pay. Large sets with 66 cm (26 inch) and 56 cm (22 inch) tubes will be more expensive than smaller sets. Also consider the room size and the number of viewers. Larger sets are suitable for large rooms and larger groups of viewers (as is the case with black and white television).
4. Q Do I need a set with high sensitivity for colour?
A For a good colour picture you need about the same amount of signal from the aerial as for black and white reception with the same set. If you have no problems with monochrome, you will almost certainly get a good colour picture. But if you are in a fringe area distant from the transmitter or behind a hill or tall building, or if you have a noisy (snow covered) picture with black and white, you can expect trouble with colour television reception.
5. Q What is the best way to avoid problems due to colour receiver performance?
A The only sure way is either to check on the performance of a set in your home before purchase, or to buy on the condition that the set gives good reception in your home when installed. Often a higher gain aerial or a more sensitive set will solve the problem.
6. Q Are ghosts more troublesome in colour? (A ghost is a second image slightly displaced from the main picture.)
A Experience indicates that for moderate ghosting the problems are no worse with colour than with monochrome.
7. Q How can ghosts be eliminated?
A As with monochrome, a more directive aerial may solve the problem. An input on the set for both 75 ohms (screened co-axial cable) and 300 ohms (twin ribbon feeder) is desirable.
8. Q Do I have to fiddle with vertical and horizontal hold controls with colour television sets?
A No. Almost all modern colour television sets have automatic vertical and horizontal hold controls which are set in the factory.
9. Q How can I tell if a colour television picture is of good quality?
A Look at the received colour picture of either a test pattern or a live broadcast. Look particularly for faithful colour rendering and look at the edges of brightly coloured areas, particularly near the outer section of the

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screen. Multi coloured fringes to object edges indicate poor colour performance and indistinct rendering of edges of objects indicates poor resolution. At this early stage some transmitters are not working perfectly and you can be sure of performance only by checking all colour transmissions available in your area.

10. Q I have heard that magnetic fields affect colour television. Is this so and how is it avoided?
A Modern colour television sets have automatic degaussing (demagnetising) which operates every time the set is switched on cold. Do not place the set near large iron objects (such as a piano or steel window frame) and avoid moving the set while it is on.
11. Q What is PAL-D and is it better than other colour sets?
A PAL-D is a Phase Alternating Line system with an ultrasonic delay line in the receiver. It reduces the effects of many problems in colour television. You will not get best performance from sets not using PAL-D (pseudo PAL and PAL bypass sets).
12. Q What is UHF television? Will existing sets receive UHF?
A UHF television may be introduced for new television stations in some areas after 1976. Existing sets will not receive UHF bands unless this is specifically stated. Conversion will be possible for some sets, with either a built-in or external UHF converter. UHF coverage will be compulsory for sets sold after 1976.
14. Q Will colour television sets work for various supply voltages and cope with variations in supply voltage?
A Yes, but to varying extents. Some sets will cope with a supply range as wide as from 200 volts to 265 volts without adjustment. This is a desirable feature.
15. Q Will colour television sets be safe?
A If sets are claimed to conform to Standard AS 3159-1972 they will be safe as regards electrical safety, X-ray emission and fire hazard.
16. Q Will colour television sets cause radio or television interference?
A If sets conform to Standard AS 1053-1973 they should not cause interference. It is also desirable that they should have an intermediate frequency that conforms to Australian standards (not the overseas value 38.9 MHz).
17. Q What should I look for to obtain best sound quality?
A Choose a set with large front mounted speakers and reasonable output power at low

- distortion. For a large set 4 watts (or more) at 1 per cent distortion (or less) is desirable.
18. Q Will colour television servicing be more expensive?
- A Yes. Some manufacturers claim that there will be a low frequency of calls for modern colour television sets. However, when a fault occurs it will usually cost more for parts and labour to fix it than with black and white sets.
19. Q As colour television sets are very expensive, will the warranty be better than for the warranty on black and white sets?
- A Usually not. Most warranties will be for 90 days free service and 12 months on the picture tube, the same as for many monochrome sets.

Data Section

Information in this section was supplied to ACA by the manufacturers or distributors of these brands in response to our questionnaire.

AWA - THORN

Model C601	\$940.00 66 cm de luxe console; three speakers (two 18 cm x 13 cm and one 5 cm tweeter) underneath picture tube. 4KA chassis.
Model C602	\$950.00 66 cm de luxe lowboy; four speakers (two 18 cm x 13 cm and two 5 cm tweeters) two on each side of picture tube. 4KA chassis.
Model C603	\$897.00 66 cm lowboy; one front mounted (15 cm x 10 cm) speaker. 4KA chassis.
Model C604	Not yet available. Price not yet known. 56 cm lowboy; two speakers - one each side of picture tube. 4KA chassis.

4KA chassis (Australia made version of UK set).
Full PAL-D.
110° shadowmask picture tube.
Aerial input 300 ohm and 75 ohm.
Tuner changed from VARICAP (featured in United Kingdom models) to rotary turret. No provision for integral UHF coverage.
Conforms to Australian Standards.
Automatic degaussing.
Mains supply voltage range from 215 V to 265 V with no adjustment required. From 225 V to 275 V using taps.
Mains transformer power supply with earthed chassis.
Protection - current overload and voltage overload protection, thermal overload cutout.
Audio power output 3 W.
Service manual available and colour television booklet, Golden Answer Book.
AWA-THORN will import the following receivers using 3504 chassis with 90° deflection picture tube:

AWA Model 605	56 cm lowboy; one front mounted speaker (18 cm x 9 cm).
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AWA Model 606
66 cm lowboy; one front mounted speaker (18 cm x 9 cm).

THORN Model 9105
56 cm lowboy; one front mounted speaker (18 cm x 9 cm).

THORN Model 9104
66 cm lowboy; one front mounted speaker (18 cm x 9 cm).

G.E. to import sets. Information not yet available.

H.M.V. (E.M.I. HEALING)

Model 1271
Suggested price \$925.00
66 cm; two front mounted speakers (13 cm x 18 cm).

Model 1272
Suggested price \$825.00
56 cm; one front mounted speaker (13 cm x 18 cm).

Full PAL-D.

110° shadowmask picture tube.
Aerial input 300 ohm only.
No provision for integral UHF coverage.
Conforms to Australian Standard AS 3159.
Automatic degaussing.
Mains supply voltage range from 200 V to 265 V without adjustment.
Switching mode power supply.
Audio power output 2 W at 5 per cent distortion.
Service manual available.
Has swing up chassis, removable boards and socket mounted integrated circuits.

KREISLER

Model 660-1
\$1014.00
66 cm lowboy; one front mounted speaker (15 cm x 10 cm).

Model 660-2
\$1044.00
66 cm console; two front mounted speakers (15 cm x 10 cm).

Model 660-3
\$1069.00
66 cm deluxe lowboy; two front mounted speakers (15 cm x 10 cm).

Model 660-4
\$1014.00
66 cm console; one front mounted speaker (15 cm x 10 cm).

Model 560-1
\$959.00
56 cm console; one front mounted speaker (15 cm x 10 cm).

All sets use 59-1 chassis.

Full PAL-D.
110° shadowmask picture tube.
Aerial input 300 ohm and 75 ohm.
VHF turret tuner with provision made for connection of external UHF tuner.
Conforms to Australian Standards.
Automatic degaussing.
Mains supply voltage range from 210 V to 265 V with no adjustment required.
Switching mode power supply with earthed chassis.
Overload protection and safety features in form of fusible and spring resistors.
Audio power output 4 W at less than 1 per cent distortion.
Service manual 59-1.
Six plug-in modules and main printed wiring boards pivoted to allow easy access for fault finding. Eight integrated circuits fitted with sockets to facilitate replacement.

LAWRENCE & HANSON

To import Korting sets with common chassis. Prices not yet determined.
Model 56700
68 cm; one front mounted speaker (15 cm x 8 cm).

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Model 55732
68 cm; one front mounted speaker (15 cm x 8 cm).

Full PAL-D.

110° shadowmask picture tube.
Aerial input 300 ohm and 75 ohm.
Provision for integral connection of UHF tuner.
Conforms to Australian Standards.
Automatic degaussing.
Mains transformer power supply.
Overload protection.
Audio power output 4.5 W.
Service manual available.
Chassis has 13 plug in modules. Fully electronic fault finding module for servicemen.

NATIONAL (Matsushita Electric Company)

Australian plant (Penrith) to manufacture sets locally.
51 cm sets in two styles, each of which will sell for about \$700.00. Full PAL-D.

NORGE

To import sets made in Italy.

PHILIPS

Model KD254	\$850.00 56 cm set.
Model KD654	\$924.00 66 cm set.
Model KD684	\$999.00 66 cm deluxe Furniture, wide boy.
Model KD694	\$999.00 66 cm deluxe Audio wide boy.

K9A chassis is Australian version of K9 chassis sold in Europe. Various bases (table and leg fittings).
Full PAL-D.

110° shadowmask picture tube.
Aerial input 300 ohm and 75 ohm.
Tuner changed from original VARICAP version (featured in European models) to VHF tuner only.
Conforms to Australian Standards.
Automatic degaussing.
Mains supply range from 210 V to 264 V without adjustment or 225 V to 280 V with adjustment.
Switching mode power supply and earthed chassis.
Overload protection for 26 KV and power supply overload.
Special safety features in form of fusible and spring resistors.
Circuit manual (confidential for dealers), customer guide, warranty, dealer instruction manual, checklist and model booklet.
Plug in modules for quick repair of critical sections.

PYE

T29 chassis (36 cm and 46 cm) and T30 chassis (66 cm).
Various models with similar features.
Full PAL-D.
110° shadowmask picture tube.
Aerial input 300 ohm and 75 ohm.
VHF tuner with provision for connection of later UHF band.
Conform to Australian Standards.
Automatic degaussing.
Mains supply range from 210 V to 280 V with no adjustment or from 190 V to 300 V with adjustment.
Mains transformer power supply.
Overload protection.
Also has audio tape outlet socket, headphone socket.

RANK - N.E.C.

Australian plant (Penrith) to manufacture sets locally. 56 cm sets initially to be followed by 66 cm sets. Import of 36 cm
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and 46 cm sets. Prices will range from \$475.00 for a 36 cm set to \$765.00 for a 66 cm set. All sets full PAL-D.

Model 2201/2

56 cm set 110° shadowmask picture tube.
Model 2601
66 cm set 90° shadowmask picture tube.

Full PAL-D.

Aerial input 300 ohm and 75 ohm.
No provision for integral UHF coverage.
Automatic degaussing.
Mains supply voltage range. Model 2201/2 from 220 V to 260 V with no adjustment required.
Model 2601 from 220 V to 270 V.
Mains transformer power supply.

SANYO GUTHRIE

Australian plant (Wodonga) to manufacture sets locally.
36 cm and 46 cm sets to be imported from Japan.
Model CTP 7601. Price not yet available.

Full PAL-D.

110° shadowmask picture tube.
Aerial input 300 ohm and 75 ohm.
Provision for integral UHF coverage.
Conforms to Australian Standards.
Automatic degaussing.
Mains supply range from 200 V to 270 V without adjustment.
Mains transformer power supply.
Overload protection.
Audio power output 1.3 W at 2.4 per cent distortion (maximum 3 W).
Front mounted speaker (11.5 cm).
Service manual available.
Picture tube uses black matrix.

SHARP

Australian plant (Fairfield) initially to manufacture 56 cm sets. Also import Japanese 46 cm colour sets.
Automatic brightness control system, also in line, horizontal three cathode gun which eliminates vertical colour shift.

SONY-KEMTRON

To import Sony sets from Japan
Model KV1800 AS
First 46 cm model (to be available early 1975) will sell for approximately \$635.00.
Full PAL-D.
90° Trinitron picture tube.
Aerial input 300 ohm only.
Provision for integral UHF coverage.
Conforms to Australian Standards.
Automatic degaussing.
Mains voltage supply range from 215 V to 265 V without adjustment. 220 V or 240 V or 260 V with adjustment.
Mains transformer power supply.
Overload protection.
Audio power output about 1.5 W. Front mounted speaker (10 cm).
Service manual similar to that used in United States of America to be available.

SUNBEAM

To import Graetz receivers. Three models, all 66 cm, will be available, two of which will have remote control facilities. All three models will be full PAL-D with switching mode power supply, VARICAP tuner with VHF and UHF coverage and electronic tuning. Prices not yet available.

SUN ELECTRIC

To import Nordmende (West Germany) sets including some with ultrasonic remote control.

Wet Suits

young
choice



Once the exclusive uniform of scuba divers, the wet suit has now become a standard item of equipment for many aquatic sportsmen. Used by centreboard sailors, waterskiers, surfers and underwater fishermen, it will keep the wearer warm both in and out of the water. It has made year-round participation more comfortable in all these sports.

A wide variety of styles of wet suit is available and many are designed for a specific task. One of the most commonly used is the ski-suit. Designed to provide protection about the torso and to leave arms and legs free, it covers the body and has only short arms and legs.

Other suits vary according to their intended use. A skindiver's suit may provide complete protection from neck to ankle including long sleeves and even a hood to cover the head. At the other end of the range are short jackets, providing cover from neck to waist, and designed for those expecting, or hoping for, only infrequent immersion in temperate water. Between these limits is a great number of variations. ACA found it was necessary to choose only one style for this test. We decided it would be the ski-suit because of its versatility and popularity.

How a wet suit works

A wet suit is intended to provide its wearer with protection in cold water or in a cold wind after immersion. But, as its name implies, it does not keep the wearer dry. It is designed to allow the entry of some water which is trapped against, and warmed by, the wearer's body. Most suits are made of a foam material which is porous from the inside but is covered on the outside by a waterproof skin. In this way water which enters the suit through the neck, sleeves and cuffs is held within the material of the suit and its movement is restricted. The waterproof skin provides insulation from ambient temperatures and, with the warmed water trapped beneath it, an effective temperature shield is formed.

What we bought

Having decided to buy only ski-suits we specified our purchases by using a comprehensive list of

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RON HARDING had a nylon panel across the upper part of the chest and the rest of the suit had the smooth finish of the skin of the neoprene.

measurements taken from one of our laboratory staff. It is essential that a wet suit be a good, close fit so that it does not allow the entry of too much water through gaps at the neck, sleeves or cuffs. Although none of our suits was tried on in the store, we were able to supply all the measurements each retailer required to define the size and shape to provide such a fit.

Our market survey showed that 16 brands with ski-suit models were available in Australia. We bought one suit from each at prices ranging from \$15.98 for TURBO to \$40.99 for WHITE STAG.

Only NEMROD, O'NEILL, RON MARKS, SEA BEE and WHITE STAG were found in four or more States. U.S. DIVERS was seen by ACA's buying panel members in New South Wales, Western

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Australia and Tasmania, RON HARDING in New South Wales and Queensland and MARLIN only in New South Wales and Western Australia, ALEEDO (Queensland), ANCHOR (Victoria) and TURBO (South Australia) were seen in not more than one State as were the remainder, which were found only in New South Wales.

Written guarantees for a period of 12 months were received with ALASKAN KING, MARLIN, NEMROD, RON HARDING, SNORKEL IN and WHITE STAG, while O'NEILL and U.S. DIVERS were accompanied by written guarantees for six months. NEPTUNE's guarantee stated that it was covered for an unlimited period if treated properly. Proper treatment was not described. The manufacturers of ALEEDO and RON MARKS covered their products but did not specify for how long. Others were, of course, covered by the retailers, most of whom told us that they guaranteed the suits for six or 12 months although neither KEVIN JUNE's nor SEA BEE's specified a period.

When received, ANCHOR, DOLPHIN and SNORKEL IN showed traces of excess glue about the seams and in addition SNORKEL IN had smudges of colour where it appeared as though an emblem had been removed. O'NEILL was creased where it had been folded or squashed and RON MARKS had a hole in a seam at the crotch where some of the stitching was faulty. This model was returned to the retailer and was promptly replaced under guarantee with a satisfactory wet suit. All others were received in good condition.

Comprehensive written instructions were received with only RON HARDING and O'NEILL. TURBO was received with four care symbols which were not explained and would be useful only if their meanings were known. Instructions for "care" and use should, of course, have been provided with all other models to assist those unfamiliar with wet suits, especially as their useful life can be considerably extended with correct treatment.

Construction

Neoprene foam was the material used for all suits except TURBO, which was made of a woven synthetic fabric about two mm thick. The thickness of neoprene used in the other suits varied considerably. U.S. DIVERS was thinnest at 3.8 mm and O'NEILL was only 3.9 mm. The others were between 4.3 mm and 5.6 mm. All suits were lined with a nylon fabric which was also used as an outer cover for the foam on ALEEDO, KEVIN JUNE, O'NEILL and U.S. DIVERS. RON HARDING had a nylon panel across the upper part of the chest only and the remainder of the suit was finished with the smooth outer skin of the neoprene. The other suits did not have outer covers but used the skin of the foam. With these the finish was either smooth

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(MARLIN, RON MARKS and WHITE STAG) or had a mottled (sharkskin) pattern.

All suits were front opening and could be undone as far as the waist. TURBO fastened with Velcro tapes, which had only to be pressed together to secure the opening, while all others fastened with large plastic zippers which had been glued in position and oversewn for strength. The zippers of KEVIN JUNEE and RON MARKS had been inserted at an angle and ran from the centre at the collar to the left side at the waist. All others ran down the middle. Models with zippers had a neoprene flap covering the inside of the fastener to limit heat losses through it and protect the wearer's chest from the coarse teeth. TURBO had no protection inside the fastening strips.

To provide extra flexibility and comfort while retaining a close fit, most had a gusset at the crotch and NEMROD also provided gussets at the armpits. ANCHOR and O'NEILL were the only models without gussets.

Seams were generally soundly formed, with the two sections being either glued together and oversewn or sewn, covered with an elastic tape and then oversewn. In addition ANCHOR, DOLPHIN, MARLIN, NEPTUNE, SNORKEL IN and WHITE STAG had reinforcing patches at the armpits and crotch while NEMROD and SEA BEE were reinforced at the crotch only.

Leg cuffs of ALEEDO and cuffs and sleeves of WHITE STAG were rolled with tie cords in the legs, a refinement mainly for water skiers, who use it to prevent water being forced up the legs during a submerged start or when taking a tumble at speed.

Reinforcing stitching or edging tapes protect the open edges of the neoprene foam and prevent any chipping or tearing at the edges. ALEEDO, MARLIN, NEPTUNE and RON MARKS were provided with reinforcing stitching and RON HARDING, SEA BEE and U.S. DIVERS had edging tapes. DOLPHIN and SNORKEL IN had short lengths of tape glued over the edges of the seams to prevent their being undermined by chipping.

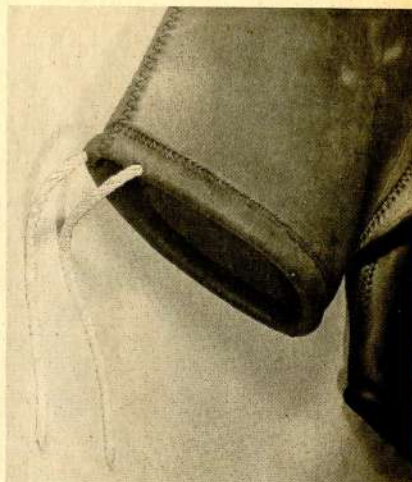
Testing

In our tests we looked at some of the most important features of a wet suit: comfort, insulation and durability.

To provide effective insulation a wet suit, as stated earlier, must be a good close fit, but it must also permit freedom of movement. Before buying a wet suit it is essential to try it on to check that it satisfies on both counts. If a suit cannot be found which offers both a close fit and comfort, it will be worth while having one made to measure, even though this will add up to \$5.00 to the retail price.

In checking the fit we found that wet suits were often difficult to remove and that help was

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Leg cuffs of ALEEDO and WHITE STAG (shown) were rolled and had tie cords inserted.

sometimes required. Those with offset zippers were easier to remove unaided as they could be pulled off the left shoulder, leaving the arm free to peel off the rest of the suit. Offset zippers have the advantage of providing extra comfort for the surfer. When the wearer is lying to paddle a surfboard, the zipper is not pressed into the chest by the weight of the body.

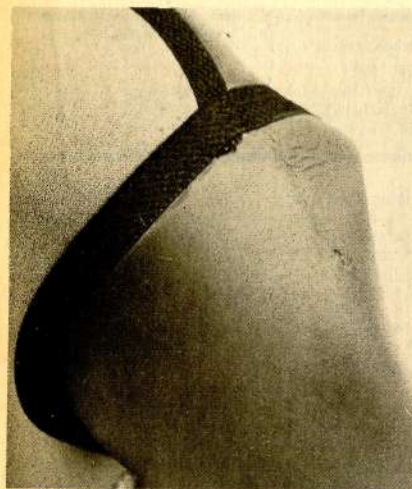
The Velcro fastening strips of TURBO were found to be inconvenient when putting on or removing the suit, as the top strip flapped against the body, catching and pulling the chest hair of our male tester; a small but annoying problem.

Heat transfer tests were designed to compare the insulating ability of each suit under controlled conditions, and we found that the insulating properties of the neoprene suits depended mainly on the thickness of the foam. The suits about five mm thick had similar rates of heat transfer and were the best of those tested, while those less than four mm thick offered significantly less insulation. TURBO was the poorest of those tested and, as its nylon fabric was not waterproof, this model would be of little use as a wet suit.

Wet suits must be able to stand up to punishing treatment. In normal use they are likely to scrape against rocks, be exposed to sand and grit and subjected to a great deal of stretching. We examined all these aspects of durability carefully.

Seams play an important role in the efficiency of a

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Seams must be well constructed to withstand constant tension and considerable stretching. RON HARDING's were covered with elastic tape and oversewn.

wet suit. A torn seam will speed the flow of water through a suit and thus severely reduce its insulating ability. Seams are subjected to frequent stretching and they must be strong enough to withstand constant tension without tearing. To test this we applied a force of 50 newtons across a leg seam of each and maintained it for 30 seconds. A force of 80 newtons was then applied for an equal period. Although all seams and all the materials stretched considerably under the greater force, none showed any sign of damage.

Abrasion resistance was tested by placing a load on one section of each suit and dragging it across a slightly abrasive surface. Each suit was examined at intervals during the test and the procedure halted if the suit showed severe signs of wear. If no undue wear was noticed the test was concluded after 300 passes.

ANCHOR, NEMROD and SEA BEE were rated good, showing only minor signs of wear after the full test. All those with nylon covers showed severe signs of wear, and after only 50 passes, the nylon fabric was scuffed away. The smooth neoprene skin of WHITE STAG was easily penetrated after 100 passes and MARLIN's skin had been worn through in some places at the end of the test. All other suits were marked where small pieces of neoprene foam had been torn away.

A puncture test showed that TURBO was more

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easily penetrated than the neoprene foam suits but even so suffered no lasting damage. All neoprene models provided adequate resistance to puncturing.

Our suits were given a practical test in which they were subjected to repeated dives in salt water. Results obtained by an experienced skin diver in this test agreed with those found in the laboratory. It was observed that the fewer seams a wet suit has, the better will be its insulating properties.

Plastic zippers with large teeth, as provided on all neoprene suits, were found to be very convenient. The large teeth allow free movement when wet — even when particles of sand or grit get into the zipper.

Conclusions

By the time our tests were completed it was apparent that TURBO was of little use as a wet suit. The fabric was not waterproof and it had by far the poorest insulating properties.

The neoprene suits were generally well made, with strong seams and soundly inserted, non-corrosive zippers. We have not recommended models which performed poorly in the durability tests, nor have we recommended those which had no stitching or tapes to reinforce the edges.

The recommended models were chosen mainly on the basis of their performances in the durability tests. Although we put no emphasis on insulating ability in making our recommendations, those which were most durable were all about five mm thick and among those providing the best insulation. However, the

Brand and model	Price (\$)	Thick- ness (mm)	Surface	Durability*
ALEEDO	37.30	4.8	nylon	●●
ALASKAN KING	35.00	5.2	mottled	●●●●
ANCHOR	30.00	5.0	mottled	●●●●
DOLPHIN 101S3	27.00	5.2	mottled	●●●●
KEVIN JUNEE	29.95	4.3	nylon	●●
MARLIN	28.00	5.0	smooth	●●●●
NEMROD Equipos	39.95	5.6	mottled	●●●●
NEPTUNE	29.41	5.0	mottled	●●●●
O'NEILL	38.50	3.9	nylon	●●
RON HARDING				
American Surfer	39.00	4.6	smooth	●●●●
RON MARKS				
Up Tide	35.95	5.2	smooth	●●●●
SEA BEE	28.35	4.8	mottled	●●●●
SNORKEL IN	30.00	5.0	mottled	●●●●
TURBO	15.98	2.5	nylon	●
U.S. DIVERS	29.95	3.8	nylon	●●
WHITE STAG				
58120	40.99	5.2	smooth	●●

*the more dots
the better



Offset zippers of KEVIN JUNEE (shown) and RON MARKS made the suits easier to remove and provided comfort for surfboard riders.

amount of protection required from low temperatures will depend on the purpose for which the suit is bought. In many cases a thinner suit will be satisfactory.

Pre-publication check

In conducting our pre-publication check we were unable to find any TURBO wetsuits. ALEEDO was found at \$1.80 less than we had paid but we found that prices had risen for NEPTUNE (a 60 cent rise), DOLPHIN (\$1.80), SNORKEL IN (\$2.00), ALASKAN KING and MARLIN (\$3.00 each). The largest rise was in the price of SEA BEE which had risen by \$6.85 but all others were selling for the same price that we had originally paid.

Recommended

NEPTUNE	\$29.41
RON HARDING American Surfer	\$39.00
RON MARKS Up Tite	\$35.95
SEA BEE	\$28.35

Buying a wet suit

If care is taken when buying a wet suit many problems which arise in use will be avoided and its efficiency will be improved. Some aspects of careful buying are:

- try the suit on in the store and make sure it is a close fit.
- make sure that the suit is comfortable and won't chafe at the armpits or crotch.
- look for a zipper which won't corrode and is easily operated when wet.
- examine the seams to see that they are strong and have either oversewn tapes or reinforcing stitching for added strength.
- look for bound, taped or rolled edges which will protect sleeves and cuffs.

Care of a wet suit

The useful life of a wet suit can be increased if it is treated with care. Important factors are:

- after use, especially in salt water, wash the suit thoroughly in fresh water and allow to dry completely before storing.
- keep the suit out of sun and direct heat.
- do not expose the suit to petrol or oil fumes.
- treat the suit carefully when putting it on or taking it off.
- hang the suit up for storage, preferably on a thick hanger.

ELECTRIC HEATERS — ADDITIONAL INFORMATION

It has been brought to our attention by some supply authorities that the fuel cost comparison table in the report on Electric Heaters in June 1974 does not apply to all parts of Australia. The figures shown in the Table serve only as a comparative guide for typical general costs and reference to local suppliers will be necessary to obtain costs in particular areas.

Costs will also vary according to the efficiency of the heating appliance used. Normally the efficiency of a heating appliance using oil, kerosene or gas as fuel is about 80 per cent while the efficiency of an electric radiator is close to 100 per cent.

Face Masks and Swimming Goggles

young
choice

Normally when you open your eyes underwater you can see only blurred shapes, but all you need is a face mask to give you a clear view of Neptune's world.

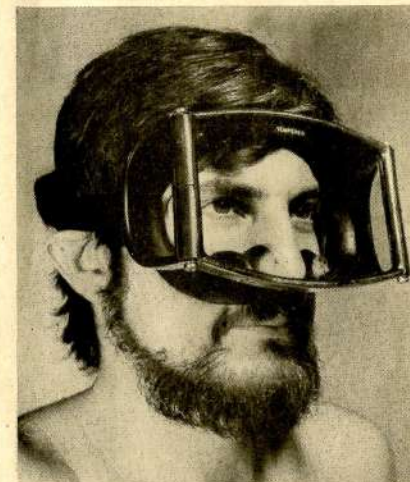
What we bought

We purchased 15 face masks ranging in price from \$2.70 to \$13.54.

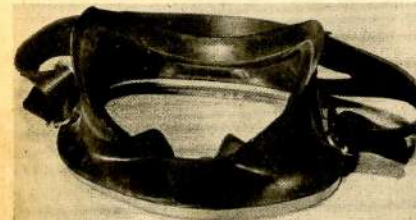
Our buyers bought the least expensive face mask they found in ranges where there was more than one model. This is an important point to keep in mind when reading this report because other models in a manufacturer's range may have more desirable features than those of the face masks we tested. For example, the NEMROD Bali had a single seal, a compensator which we judged difficult to use and gave poor visibility, while other face masks in the extensive NEMROD range which we did not include in the test could well have rated better.

The Table shows where the masks were made and also where they were seen by buying panel members.

The manufacturers' guarantees supplied with CRESSI SUB, HEALTHWAYS and TECHNISUB were all but worthless because details of the guarantee were not given. A.M.F. MARES SUB's and G.S.D.'s guarantees were in Italian. The other face masks were not covered by guarantee.



The glass side panels of SEA BEE increase the field of vision.



A double face seal, like that on G.S.D., gives better protection against leaks than a single seal.

Fit

It is essential to get the proper fit in a face mask. If it is too tight it will be uncomfortable, if it is too loose it will leak.

The thin rubber edge of the mask should form a watertight seal with your face. Seven masks had a double seal which should assure a better fit. They are noted in the Table.

BRITMARINE and ESPADON had relatively narrow single straps which could easily become twisted. The wide split straps on other face masks gave a much smoother fit.

Field of vision

Visibility varied according to the shape of the mask and the distance of its glass from the face seal. Peripheral vision will be poor in a mask with a wide shroud. SEA BEE's visibility was expanded by glass side panels. Models with side panels are available from other manufacturers — but, like SEA BEE at \$13.54, such masks are usually expensive.

Several other masks had shrouds narrow enough to be rated good in visibility. The rating for each mask is given in the Table.

Purge valves

Many divers feel that a purge valve creates more problems than it solves. The purpose of the valve is to allow water which has leaked into the mask to be expelled through the purge valve by blowing into the mask. But the valve itself can become a source of leakage.

None of the masks we tested was fitted with a purge valve, though one was supplied with the G.S.D.. ESPADON, NEMROD and SEA BEE had indentations in the rubber membrane which indicated where a purge valve could be attached.

Faceplate

It is very handy to be able to remove the faceplate and clean out sand and grit which could eventually cause the mask to leak.

Faceplate removal and replacement was very easy with A.M.F. MARES SUB, ESPADON, JANTZEN and VOIT — at most it involved undoing and refastening two nuts. Other models were considerably more difficult to dismantle. The G.S.D. required two people for the operation, as the rim had to be pushed back at the same time as the fastening lug was being relocated. There was no visible means of removing TECHNISUB's glass without breaking it.

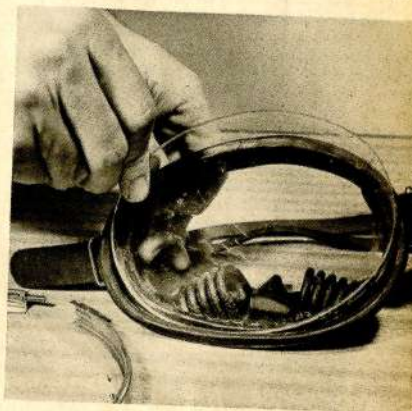
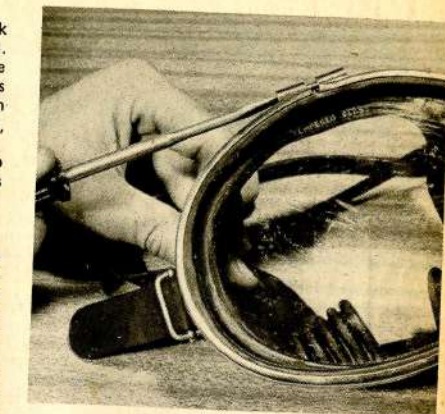
We tested the strength of the faceplates by dropping a steel sphere of 130 g onto the glass from 2.5 metres. Our test was not severe. If you dropped one of these masks from a height of just one metre while clambering over a rocky coastline you would be subjecting the glass to an appreciably larger impact.

Five masks failed this test, but none of these broke into sharp pieces. Glass thickness, which varied from 3.3 mm to 5.1 mm, did not have a noticeable effect on strength as both thick and thin faceplates were shattered in our test.

Compensating for pressure

When you dive below the surface of the sea, the pressure of water on your body increases as you go deeper. At a depth of 10 metres the air in your lungs has been compressed to half of the volume it was at the surface.

At a depth of only two metres, the increase in pressure is noticeable as the mask is forced more



VOIT's faceplate was easy to remove and replace.

tightly on to the face. To equalize pressure inside the mask the diver simply exhales through his nose.

At between two and three metres, increased pressure can often be felt as a sharp pain in the ears. This pain, which is caused by the pressure of the water stretching the eardrums, is akin to, but more acute than, the slight discomfort caused by a rapid change of level on land. The pain can be relieved by clearing the Eustachian tubes — tubes which lead from the middle ear to the throat and serve to

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Brand and model	Price (\$)	Where seen	Origin	Compensator?	Sealing	Impact test	Visibility	Compensator operation (the more dots the better)	Faceplate removal
A.M.F. MARES SUB Corsara	5.95	NSW Tas Vic WA	Italy	Yes	Double	Pass	••	••••	•••
BRITMARINE B 125 Sharky	2.70	NSW Qld WA	England	No	Single	Pass	•	—	•
CAVALERO CHAMPION Gymnot 528.200	10.45*	NSW Tas Vic WA	France	Yes	Double	Pass	•••	••	•
CRESSI SUB Cleo	5.50	NSW Qld SA Tas Vic WA	Italy	Yes	Double	Fail	•	•••	•
ESPADON Panoramique Modele Depose 101	3.99	NSW Qld SA Tas Vic	France	No	Single	Fail	••	—	•••
G.S.D. Smeralda Simbrist	8.99	NSW Qld Tas Vic WA	Italy	Yes	Double	Pass	••	•	•
HANIMEX Tropic	4.25	NSW Qld WA Vic	Japan	Yes	Single	Pass	•	•	•
HEALTHWAYS Scubalizer	9.84	NSW	Italy	Yes	Double	Pass	•	•	•
JANTZEN Heron J 310	4.50	NSW Tas WA	England	Yes	Single	Pass	•	•	•••
NEMROD Bali 2025901	6.50	NSW Qld SA Tas Vic WA	Spain	Yes	Single	Pass	•	•	•
SEA BEE 5521	13.54	NSW Tas Vic	France	Yes	Double	Pass	••••	••	••
TABATA Ventura M-600	5.75	NSW Tas SA Vic WA	Japan	No	Single	Fail	•••	—	•
TECHNISUB Naso	8.50	NSW Qld Vic WA	Italy	Yes	Double	Fail	•••	•••	+
VOIT by Slazenger B 15	4.95	NSW Qld SA Tas Vic WA	—	Yes	Single	Pass	•	•	•••
WHITE STAG Tabac	4.50	NSW	Japan	Yes	Single	Fail	•••	•••	•

*Regular retail price is \$7.80

+No visible means of removing glass

balance pressure inside and outside the eardrum. During a shallow dive the Eustachian tubes may be cleared by a few dry swallows.

At depths of over three metres most divers find it much easier to equalize pressure by holding their nose, keeping their mouth shut and trying to blow out. Of course, to do this the diver has to be able to hold his nose shut and this is the function of the compensator.

We had a professional diver assess the masks' CHOICE, January 1975

performance during several dives to depths of between five and seven metres.

BRITMARINE, ESPADON and TABATA did not have compensators and the diver refused to use them in the tests. His rating on the ease of operation of the compensators is given in the Table. A.M.F. MARES SUB was judged clearly superior to other masks in the group. Those rated as good all had exposed nosepieces. Compensators which consisted of indentations in the rubber membrane of the masks



The diver's view was severely restricted with the BRITMARINE face mask.

which fit around the nostrils were found to be from fair to difficult to use. Masks with oval face plates and inset mouldings for holding the nose were the most difficult to use for equalizing pressure.

Conclusions

The most important requirement of a mask is that it fits well. The only way to be sure that a particular mask is right for you is to test it.

We suggest you try this test in the shop: Hold the mask up to your face but don't fasten it with the head strap. Breathe in through your nose. If the mask is a good fit it will stay on your face until you exhale. In general, a double sealed mask is less likely to leak than one with a single seal.

If you plan to do any diving, you should buy a mask with an effective compensator. Also check visibility. The SEA BEE's side panels gave a wide view. (Incidentally, to keep a mask from fogging up, you rub the inside of the plate with saliva and swirl a little sea water over it.)

Both recommended masks had faceplates which could be fairly easily removed for cleaning, and both passed our impact test.

A.M.F. MARES SUB earned its recommendation on the basis of performance, but at \$5.95 it is also an excellent buy.

Pre-publication check

Prices of ESPADON, G.S.D., SEA BEE and TABATA had risen by more than \$2.00 each. BRITMARINE was up by \$1.65 to \$4.35. At first glance it appeared that the price of the CAVALERO CHAMPION Gymnot had decreased from \$10.45 to \$7.80, but further investigation showed that we were originally charged for the CAVALERO CHAMPION Equinaut — a model with an exposed nosepiece. CRESSI SUB, HANIMEX, TABATA and WHITE STAG were out of stock when we checked. The remainder had stayed at about the same price.

Recommended Face Masks

A.M.F. MARES SUB Cosara	\$ 5.95
SEA BEE 5521	\$13.54

SWIMMING GOGGLES

Manufacturers claimed that the type of goggles we tested could be used for yachting and skiing and in situations where smoke, dust or fumes could irritate the eyes. The view through the plastic lenses was so distorted, however, that the only use we could see for them is the traditional one of protecting swimmers' eyes from chlorine or salt.

A considerable number of Australians start the day with a dip in a pool or the ocean; if they use swimming goggles they don't have to go around with bloodshot eyes. Some swimmers in training find them essential.

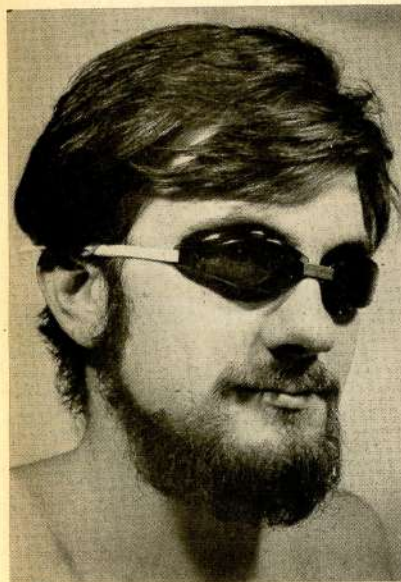
What we bought

We purchased five pairs of swimming goggles. The least expensive goggles were the Italian A.M.F. MARES SUB Polinesia at \$1.60. Australian made EYELINE Dolphin were at the other end of the scale with a price of \$3.10 (and EYELINE's Deluxe models cost \$2.95). PROTECTOR, the other Australian goggles, were reasonably priced at \$1.79.

The four goggles mentioned consisted of moulded plastic lenses gum frames, which were glued to a cushion of foam rubber and connected by a plastic strip which fits over the nose, and a thin rubber band with plastic buckles which could be adjusted to head size. EYELINE's Deluxe and Dolphin goggles had an adjustable nose strap.

TAHITI-PRO M-102 goggles, bought for \$1.99, were considerably different in design and construction. They consisted of round glass lenses

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All goggles tested did a good job of protecting a swimmer's eyes from chlorinated pool water. Pictured are the EYELINE Dolphin goggles.

surrounded by a wide rubber skirt. We consider the TAHITI-PRO very dangerous for two reasons. First, because they are labelled Professional Diving Goggles — and goggles should never be used for diving. If you dive with goggles on, they get pressed to the face. As you go deeper the pressure forces the eyes to bulge out. The word "professional" adds insult to potential injury. The second hazard of TAHITI-PRO goggles is their untempered glass lenses. When we dropped the goggles on to a concrete floor from one metre a lens broke into long, sharp splinters.

User test

We tried the goggles out in a pool and found that they were all comfortable to wear. The blue lenses of the EYELINE Dolphin goggles produced even more distortion in water than they did on land, but even so swimmers could make out the guidelines painted on the bottom of the pool. None of the goggles leaked during our tests.

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A lens of the TAHITI PRO goggles broke into potentially dangerous sharp splinters.

Conclusions

All goggles tested did an excellent job of protecting swimmers' eyes from chlorinated swimming pool water. Goggles must never be worn for diving, however, and the suggestion that TAHITI-PRO are suitable for this purpose makes them very dangerous. The untempered glass used in TAHITI-PRO makes them doubly hazardous.

Since the plastic goggles were similar in performance we have based our recommendations on price.

Pre-publication check

TAHITI PRO are not only the worst of the goggles, a recent price rise to \$3.50 has also made them the most expensive. The recommended PROTECTOR goggles were still selling for \$1.79 at the store where we made our original purchase but they were available from another store for \$1.20. A.M.F. MARES SUB Polinesia, the other recommended goggles, were not in stock when we checked but our buyers were told that they could be ordered for \$1.90. Prices had remained the same for EYELINE Deluxe and Dolphin goggles.

Recommended Swimming Goggles

A.M.F. MARES SUB Polinesia	\$1.60
PROTECTOR	\$1.79

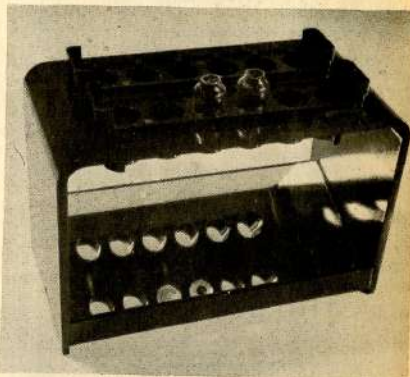
Pregnancy Tests

A false reading from a pregnancy test can be the cause of great disappointment or complete panic.

To get an indication of the accuracy of pregnancy tests being done by doctors and chemists, ACA enlisted the aid of pregnant and non-pregnant women, a young girl and one of our male staff members. Each produced an early morning urine sample which was tested by a doctor and a chemist. One false reading was reported by a woman who was seven weeks pregnant — the test she had done by a chemist was negative.

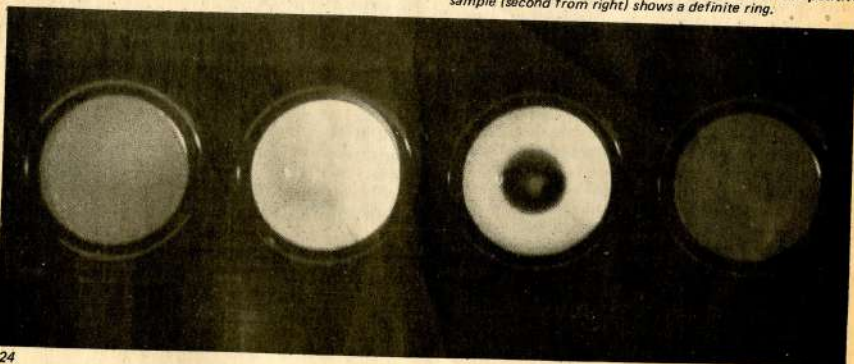
The number of people participating in our test was too small for us to determine a statistically valid rating of the accuracy of pregnancy tests performed by either doctors or chemists. Manufacturers of most commonly used tests claim that results show better than 95 per cent agreement with clinical findings. Reports of independent studies which have been published in medical journals generally back up these claims.

We did notice a large price difference between tests performed by chemists and those done at



A mirror under the test tube rack helped facilitate reading the PREGNOSTICON 'All-in' test.

This close up shows the bottom of the ampoules used in the PREGNOSTICON 'All-in' test. The negative sample (second from left) has a diffuse sedimentary pattern. The positive sample (second from right) shows a definite ring.



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doctors' surgeries. The chemists charged \$3.50 except in one case where we paid \$4.00. The doctors charged between \$5.00 and \$6.00 each.

One woman received a roneoed sheet from the chemist which gave some general information about pregnancy tests and listed the test used along with the result. We think that such information sheets are very good. Some of the pharmaceutical companies have had similar forms printed for use by chemists. But doctors as well as chemists should give women some information about the test they are using.

THE TESTS

All commonly used pregnancy tests check for the presence of a hormone — human chorionic gonadotrophin (HCG) — which is produced in the placenta and shows up in urine.

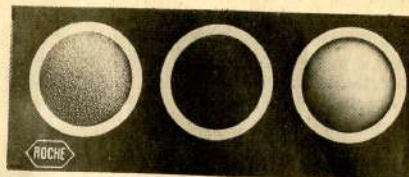
Biological tests performed on rabbits, frogs, mice or rats are the most accurate. Such tests are occasionally performed by pathologists, but results are difficult to interpret and the test procedure is complicated and time consuming. Most doctors and chemists use slide or test tube tests based on HCG detection.

With PREGNOSTICON 'All-in' — a commonly used tube test — the "tubes" referred to are ampoules which contain cells treated with HCG. The glass ampoule is broken open and placed in a holder. Urine and distilled water are added and the mixture is agitated for one minute. If the urine contains HCG, as it does with pregnant women, a specific sedimentary pattern in the form of a clearly defined ring is visible at the bottom of the tube within two hours. If there is little or no HCG present in the urine, a diffuse yellow-brown sediment is seen — this means the test is negative. A mirror under the test tube holder facilitates the reading of results.

Most slide tests are based on the principle of latex agglutination inhibition. Polystyrene latex particles sensitised with HCG are agglutinated, or clumped together, by HCG antiserum. But if urine containing a sufficient quantity of HCG is mixed with the antiserum before the addition of the latex particles, the antiserum is neutralised and no agglutination occurs.

Execution of this type of test is very simple. A drop of urine is placed on a slide, a drop of antiserum is mixed with it, and the mixture containing latex particles is added. If the mixture on the slide remains homogeneous during the two minute reaction period, the test is positive. If the mixture agglutinates, or

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The clumps in the sample on the left of the PREGNEX slide indicate a negative result. HCG present in the urine of a pregnant woman inhibits clumping so that the positive sample on the right is smooth.

becomes granular as clumping of the particles occurs, the result is negative.

GRAVINDEX, PREGNEX, PLANOTEST, PREPUREX and UCG are commonly used slide tests.

How soon can you tell?

The old joke has it that one can't be "just a little bit pregnant", but with the availability of legal abortions where the technique depends on the term of pregnancy, time distinctions have become more important.

Early detection of pregnancy is more likely with a tube test than a slide test. The manufacturers claim that with PREGNOSTICON 'All-in' it is possible to diagnose pregnancy from about the eighth day after the absence of menstruation (about 36 days from the first day of the last menstrual period). The test can be performed as early as a few days after the absence of menstruation. In this case a positive result is generally reliable, but with a negative result the test should be repeated a week later. The UCG tube test is even more sensitive. Its maker says that accurate results can be obtained from four days after a missed period.

According to the manufacturer, the PREGNEX slide test will usually diagnose pregnancy 12 days after a missed period (about 40 days from the onset of the last menstrual period). The test can be performed as early as a few days after the absence of menstruation. In this case a positive result is generally reliable, but with a negative result the test should be repeated a week later.

The distributor of GRAVINDEX recommends that tests made within 41 days of the onset of the last menstrual period which show a negative result should be confirmed after 41 days. Positive results obtained within that period are valid.

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The sample

The urine sample should preferably be collected first thing in the morning. Although samples can be collected any time during the day, the concentration of HCG builds up overnight. An early morning sample could therefore be helpful in detecting an early pregnancy.

You don't have to rush to the chemist or doctor to deliver the sample. Urine can be kept unrefrigerated for a day. If you pop the sample into the refrigerator, it can be stored for about two days, and urine which is frozen after collection can be stored indefinitely. Be sure to wait until the sample has reached room temperature, however, before handing it over for testing. Cold urine does not cause agglutination as quickly as it would at room temperature, and as slide tests are read after just two minutes a false positive result could occur.

The slide tests require one or two drops of urine and tube tests need only 0.1 ml. Of course, it is difficult to collect urine in a small container, so most women find it easier to transfer the sample from a large container into a small bottle which can be carried easily in their handbag.

The collection and sample bottles should not be washed with soap, detergents or organic solvents because even a trace of these can have an adverse effect on test results. Bottles should be cleaned by rinsing them very thoroughly with water.

What can cause a false result?

Since HCG secretion is the result of metabolic activity by viable placental tissue, tumours containing this tissue will give a false positive result for pregnancy tests. A hydatidiform mole is a benign tumour which develops from placental tissue. It may occur during a normal pregnancy and can also occur following a pregnancy or spontaneous abortion. Malignant tumours which secrete HCG are much more rare than hydatidiform moles but they will also give false positive results.

HCG production drops to a very low level after 140 days of pregnancy and women could get false negative results if their urine is tested when they are more than 20 weeks pregnant.

The most common cause of false negative results is because the tests are done too early.

Pathologists who have tested the accuracy of several types of pregnancy tests have found that those sensitive enough to eliminate false negatives increase the likelihood of false positives. Since tube tests are generally more sensitive than slide tests, they are more likely to give false positive results.

Menopausal women sometimes produce a

substance which interferes with the test. Protein or blood in the urine can also lead to false positive readings. Research into the problem suggests that it is the misinterpretation of results which leads to wrong diagnosis, because the ring pattern produced by interfering substances is slightly irregular, while the ring formed as a result of the presence of HCG is always uniform.

TERMINATIONS

Generally the legal position regarding abortion is ambiguous. Clearcut statutes exist only in the Northern Territory and South Australia where the law resembles England's. Under these laws abortions, which must be performed in a hospital, are permitted when two doctors agree that the mental or physical health of a woman would be endangered more by the continuation of a pregnancy than by its termination. There is a two-month residency requirement in South Australia.

In other States, the statutes dealing with abortion have not been changed but a number of recent cases have indicated a more liberal interpretation of the old laws. In Melbourne and Sydney abortion clinics now operate openly. At the Preterm Sydney Clinic an abortion can be obtained after counselling and consultation with a doctor. The decision regarding termination of the pregnancy, to ensure that it will be within the law, lies with the doctor. Women up to nine weeks from the first day of their last menstrual period can obtain termination at Preterm if the doctor agrees. The cost is \$70.00 which includes counselling, contraceptive advice, termination of pregnancy, blood testing, and the first post-operative check. The abortion, which takes about 20 minutes, is done by vacuum aspiration under a local anaesthetic and the woman should plan to be at the clinic approximately four to five hours.

Another clinic is run in Melbourne by Dr Bertram Wainer. Abortions are performed on women who are up to 16 weeks pregnant. Counselling at the clinic costs \$12.50 and lasts about an hour. Women are encouraged to make a decision about future contraceptive techniques and some agree to the insertion of an intra-uterine device (IUD) right after the operation. An early abortion costs \$80.00 with a local anaesthetic and \$120.00 with a general anaesthetic. The fee includes two follow-up examinations.

Abortion referral services which all operate along roughly the same lines are located in several cities. They have a list of doctors and public and private hospitals that will perform abortions at reasonable cost. Facilities are recommended only after they have

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been inspected by someone from the referral service. They can usually recommend a doctor who will perform an abortion up to the twelfth week of pregnancy. The referral services also provide counselling and contraceptive advice.

Procedure

Suction, also called vacuum aspiration, is the most widely used method of abortion. Although general anaesthetic is frequently used, some doctors inject a local anaesthetic at the cervix, the necklike opening of the uterus. The cervix is then dilated with tapered metal rods until the opening is large enough to admit a thin plastic tube. A vacuum pump attached to the tube is turned on, and the uterus is emptied by gentle suction.

Dilatation and curettage (D & C) used to be the most common abortion procedure. For D & C, the doctor dilates the cervix somewhat more than for suction and then scrapes out the inside of the uterus with a curette — a slim, spoon-shaped instrument. General anaesthesia is commonly used with D & C.

Saline is generally used to terminate pregnancies after 16 weeks. The procedure usually requires from one to three days in hospital. After administering a local anaesthetic, the doctor inserts a long, hollow needle through the abdominal wall into the amniotic sac inside the uterus. Some of the amniotic fluid surrounding the foetus is withdrawn and replaced with a concentrated solution of salt water. The salt injection usually ends foetal life within a few hours and induces labour contractions from 12 to 18 hours later. Hysterotomy is an abortion method which resembles a cesarean section. It is often employed where sterilization by tying the tubes is to follow.

A procedure which has been receiving publicity recently is menstrual extraction. This is usually done before a pregnancy has been confirmed, often about a week after a missed period. The procedure is basically the same as vacuum aspiration but a syringe may be employed instead of a pump. A local anaesthetic is used if the cervix must be dilated, but this dilatation is sometimes unnecessary if a woman has already had children.

At present only a minority of obstetricians and gynaecologists and a few general practitioners are doing menstrual extractions. Because the technique is simple and the equipment inexpensive, the number of doctors carrying out this procedure may increase. An obstetrician we talked to generally charges from about \$65.00 to \$70.00. He said that none of his patients reported difficulty in collecting medical benefits.

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Menstrual extraction has its critics. Some point to recent evidence from the United States of America which indicates that the technique produces the same percentage of later complications as do regular early abortions. Critics of this technique feel that women should not be exposed to the risks unless they are definitely pregnant.

Clinics

Melbourne: Fertility Control Clinic
Telephone: (03) 419-2511, 419-3449.
Sydney: Preterm Sydney Clinic
Telephone: (02) 51-8950, 51-8954

Referral centres

Adelaide: Women's Centre.
Telephone: (08) 51-6551 (9.30 a.m. to 4.30 p.m.)
Brisbane: Children by Choice.
Telephone: (072) 36-5580
Canberra: Women's Liberation Abortion Referral.
Telephone: (062) 95-6916 (12 noon to 2 p.m.
Monday to Friday, 7 p.m. to 9 p.m. Thursday and Friday).
Melbourne: Referral Service.
Telephone: (03) 347-1564
Perth: Abortion Referral Centre.
Telephone: (092) 31-2425
Sydney: Control Abortion Referral Service.
Telephone: (02) 61-7325

CONCLUSIONS

It may be difficult to find a chemist who will do a pregnancy test, but it is worth persevering because it will cost less than a test done at a doctor's surgery. Doctors frequently refuse to do a test without a consultation or examination, which makes them even more expensive.

You should ask the doctor or chemist what test will be used. Slide tests are quick and accurate but they are less sensitive than test tube tests. Tube tests are best for determining a very early pregnancy, but they are more likely to give a false positive reading if there is any interfering substance in the urine.

If termination of a pregnancy is being considered, action should be taken quickly as early abortions are safer. In South Australia 52 per cent of terminations carried out by suction between the 11th and 13th week of gestation resulted in complications. This rate soared to 87 per cent at 14 weeks or later. Complications dropped to 40 per cent for those operations performed before 11 weeks. Some doctors will not perform an abortion after nine weeks. Of course many doctors will not perform an abortion at all.

Metric Household Scales



What do you do when your new recipe gives its quantities in metric notation and all your old mixing bowls and measures are graduated in imperial lb and oz? You either torment yourself with conversion tables or buy yourself metric household scales — by far the easier solution.

The Metric Conversion Board has recommended that volume measures (spoons and cups) be used for recipes. This will not mean, however, that scales will no longer be used. Many old recipes refer to the ingredient quantities in mass, and scales have many and varied uses such as weighing the sugar for a batch of home brew (where accuracy is essential) or weighing a modest-size gas bottle to obtain a measure of its contents.

ACA conducted a nationwide survey of metric scales, covering 13 brands and 20 models. They were of two basic types — for bench mounting and wall mounting. With the exception of the EVA-GEPO, circular fold-away wall scales incorporating a pendulum action, all operated on the spring-balance principle. One of the other scales, the EFFEM-8 Automatic, could be slipped out of its wall bracket and used on a bench, giving it a functional versatility

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the others didn't have. All the wall-mounted scales came with the appropriate brackets and screws. With the single exception of the WANDWAAGE Westa, all the scales indicated both imperial and metric units, so making them doubly useful.

Which type to buy?

The bench scale appeals to many as it can be moved from place to place in the kitchen, stored out of sight (and dust) when not in use. However, unless the user stoops to read the scale, so that the pointer and divisions on the dial line up properly, inaccuracy can result. This is known as "parallax error".

Wall-mounted scales can be positioned at eye level, markedly reducing the likelihood of parallax error. They may be particularly useful for those with little bench space in their kitchens — or for those disinclined to dig things out of cupboards. Most of the wall-mounted models we tested had foldaway trays or pans, giving them a neat appearance when not in use.

What we bought

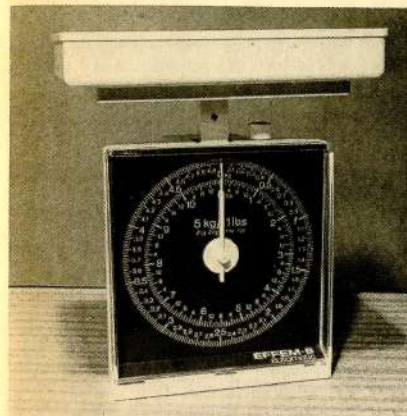
All the wall-mounted models found in the shops were bought. We bought both PRESTIGE and the two WANDWAAGE models available. We were able to find only one model in all the other brands.

Where more than one bench model was available in a brand, we bought two. If there were more than two in any one brand, the most popular in the more expensive price range and the most popular in the cheaper range were purchased. The prices of the scales we bought varied from \$3.95 to \$15.95 and details of what we paid are shown in the Table.

There was very little choice of scales in most shops and we tried department and hardware stores and some gift shops. The most readily available were the two PRESTIGE models, made in West Germany. They were available in all States and the Northern Territory — where, indeed, they were the only scales we could get. There was considerable variation in price, ranging from \$12.95 in one Queensland shop to \$16.95 in another for the same model (the 950).

Only four of the scales were made in Australia — the larger HANSON, PERSINWARE, SALTER

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EFFEM-8 could be wall mounted or used as bench scales.

Kitchen Computa 54 and TASMAR. The others came from countries as diverse as Denmark (EVA-GEPO), Ireland (the smaller HANSON) and France (TERRAILLON).

Guarantees and instructions

Five of the scales were guaranteed for three years (KRUPS 871, KRUPS Ideal 875, KRUPS Record, TERRAILLON and WANDWAAGE Tower). SALTER Weighmix and SALTER Kitchen Computa 54 were guaranteed for two years (though with the latter the guarantee was not supplied with the scales). The others were not guaranteed at all.

Only about half the scales — principally the wall-mounted ones — came with instructions. As all were easy to operate, however, the lack of instructions was of minor importance.

THE TESTS

Our tests were designed to determine these qualities, in order of priority:

1. accuracy, both initially and subsequent to use
2. ease of operation — pouring ability of the pan, reading of the scale, readjusting to the zero setting
3. adequacy of the size
4. construction and appearance.

Accuracy

It is important to realise when you buy household scales that they will not be high precision CHOICE, January 1975

instruments. The degree of accuracy to which you can weigh depends on the type of mechanism and the accuracy and quality of construction, but the size of the smallest division and the care taken in reading off the amount required are also important.

Known weights were used by our testers to assess the scales' accuracy over the full range of their capacity. The tests were carried out immediately after purchase and again after 500 full deflections, to determine reliability. We have recorded in the Table the percentage error of each set of scales as we regard this as having greater significance than absolute error. For instance, a 10 g error in measuring 50 g could mean disastrous results in some circumstances but would not matter at all to a 3 kg roast.

EFFEM Fit was inaccurate only once (by 2 per cent) in all its tests. On the other hand EVA-GEPO, which after 500 deflections was completely out of adjustment, could not be reset to the zero setting and was virtually useless.

The larger HANSON and KRUPS Ideal 875 were inaccurate in the low range and their check pointers did not return to zero after calibration.

PERSINWARE maintained its accuracy. TASMAR maintained a very good performance in the accuracy testing, but it was necessary for the user to stoop to avoid parallax error. Errors ranged from a low one per cent (TASMAR) to a high value of 25 per cent (WAYMASTER). For some applications, when only relative errors matter, a high degree of absolute accuracy is not essential. It is desirable in all cases, however, that the zero adjustment can be readily made, that it is stable and that the relative accuracy be maintained.

The adjustment of the scales for tare (that is, making allowance for an alternative container to be used instead of the pan provided) was also noted in the accuracy tests. This was significant since many of the scales had pans of a restrictive shape — especially the wall-mounted models which usually had shallow dishes for measuring — to preserve their compact design. This would mean that for irregularly shaped objects you would often need to use another container. The following scales had rather small tare adjustments:

bench models —	
EFFEM Fit	100 g
PERSINWARE	100 g
TERRAILLON	400 g
(Note however, that all these were scales with smaller overall capacity than most others.)	
wall models —	
EVA-GEPO	100 g
PRESTIGE 950	400 g
PRESTIGE 960	300 g
JUPITER	200 g

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All the other scales had a fairly generous tare adjustment of about one kg.

Ease of operation

None of the scales was especially difficult to use, though some proved awkward in important performance respects. The tray support of JUPITER showed strain with a load above two kg; the tray of the wall-mounted KRUPS Record displayed a tendency to come away from its location when it was opened out for use; the pan of the SALTER Kitchen Computa 54 was too firmly attached to the unit and could not easily be lifted off; and the zero adjustment control of SOEHNLE was awkward to reach.

Easiest to operate were PRESTIGE 950, WANDWAAGE Tower and WANDWAAGE Westa (all wall scales) and the SALTER Weighmix and TASMAN (both bench scales).

Pouring ability assessment for the pan of each scale is shown in the Table.

All the scales had dials which were easy to read, although the divisions on EFFEM Fit were very fine and close together, necessitating stooping to avoid misreading. The broad pointer on KRUPS Record tended to obscure the metric divisions on the dial. The SALTER Weighmix and the SALTER Kitchen Computa 54 had especially easy to read dials placed horizontally beneath a clear window in the base.

Size

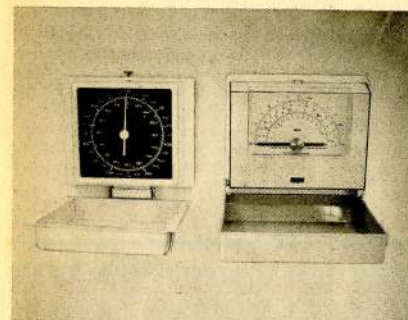
All the wall-mounted scales were fairly compact. The bench scales varied in size although it was clear that the designers had tried to keep the main unit at least fairly small for ease of storage. There were two exceptions — the PERSINWARE, which had a physically large scale capable of measuring only a comparatively small mass (500 g) and the SALTER Weighmix, which made up for its lack of compactness with the additional usefulness of two large plastic bowls. These were graduated down the side and capable of accommodating either a large amount (two litres) or an irregularly shaped object and they could be used for mixing. The provision of two bowls meant that there was less need for constant swapping of items from one container to another. This is a valuable feature since it is likely that, if you are taking the trouble to be accurate, you are doing so with all the ingredients in your recipe, not just one.

With the exception of the 500 g scales (EFFEM Fit, the smaller HANSON and PERSINWARE) all the scales were capable of taking a large single item — such as a joint of meat.

The capacity in millilitres of the pans was determined; the results are recorded in the Table.

CONSTRUCTION AND APPEARANCE

The plastic models could be bought in "trendy" kitchen colours and many were attractively packaged



PRESTIGE 950 (left) and KRUPS Record were the two recommended wall scales.



The three recommended bench scales (from left to right) SALTER Weighmix, EFFEM Fit and TASMAN.

Brand and model	Price (\$)	Weighing range	Smallest weight division	Pan capacity (ml)	Pan pouring ability	Accuracy after 500 deflections	Maximum percentage error
<i>Wall or bench</i>							
EFFEM-8 Automatic	10.95	5 kg/11 lb	20 g/1 oz	850	Fair	Very good	4
<i>Wall</i>							
EVA-GEPO	13.50	3 kg/6½ lb	10 g/¼ oz	1200	Poor	Failed test	6
JUPITER FW30	13.50	3 kg/6½ lb	10 g/1 oz	2000	Fair	Good	5
KRUPS Record	12.45	3.2 kg/7 lb	10 g/¼ oz	2250	Poor	Good	2.5
PRESTIGE 950	14.95	3.2 kg/7 lb	10 g/¼ oz	1550	Fair	Very good	2
PRESTIGE 960	9.95	3.2 kg/7 lb	10 g/¼ oz	1450	Poor	Good	3
WANDWAAGE Tower	12.50	3.1 kg/7 lb	50 G/¼ oz	1100	Poor	Fair	5
WANDWAAGE Westa	15.95	5 kg	25 g	1550	Fair	Good	3
<i>Bench</i>							
EFFEM Fit	5.95	500 g/18 oz	5.5 g/¼ oz	300	Good	Very good	2
HANSON	5.95	4.5 kg/10 lb	25 g/1 oz	900	Good	Poor	10
HANSON	4.95	500 g/16 oz	10 g/¼ oz	406	Good	Poor	15
KRUPS 871	11.09	4.5 kg/10 lb	25 g/1 oz	1250	Good	Good	4
KRUPS Ideal 875	6.00	5 kg/10 lb	25 g/1 oz	1450	Good	Poor	20
PERSINWARE 401	6.40	500 g/17 oz	5 g/1/8 oz	1400	Fair	Very good	3
SALTER Weighmix	10.50	2.2 kg/5 lb	25 g/1 oz	2500	Very good	Very good	2.5
SALTER Kitchen Computa 54	5.95	2.2 kg/5 lb	25 g/1 oz	1100	Good	Poor	12
SOEHNLE 1200	7.95	5 kg/10 lb	25 g/1 oz	1250	Good	Poor	10
TASMAN 710	3.95	4.5 kg/10 lb	50 g/1 oz	1200	Good	Very good	1
TERRAILLON BA2000	9.95	2.2 kg/5 lb	10 g/¼ oz	700	Good	Failed test	1
WAYMASTER 310D	5.95	5 kg/10 lb	25 g/1 oz	1100	Good	Poor	25

in cardboard boxes. The smaller HANSON and WAYMASTER came without cartons at all. This was considered to be somewhat inconvenient in view of the awkward shape of the goods.

CONVERSION

Some manufacturers provide a metric overlay which can be placed directly over a dial marked in imperial units. The new dials are generally inexpensive and can be fitted easily, although some manufacturers advise that the scales be returned to them as adjustments may be required.

CONCLUSIONS

Obviously when buying your scales you assess priorities. If accuracy is essential over a limited range, then one of the smaller scales such as the EFFEM Fit would suit you best. For most household purposes, however, these scales would have too restricted a range. Size and capacity are important considerations in relation to what you expect to be weighing.

Of the bigger scales, TASMAN, at \$3.95, was by far the least expensive and was very accurate. Though it was of a more simple design than the others, it was accurate, it maintained its accuracy and, with its sturdy construction, it lasted the distance well.

PRESTIGE 950, one of the most readily available of all, was also regarded as good although its \$14.95 price may be prohibitive.

The scales pan with the best pouring ability was that of SALTER Weighmix and its versatility and

accuracy were also regarded as commendable. It was however, at \$10.50, also expensive and its capacity was limited; you also get two useful mixing bowls.

Pre-publication check

We were unable to find either of the WANDWAAGE models or WAYMASTER. PRESTIGE 960, was being advertised by a mail-order company for the same price that we had paid. Both EFFEM models, JUPITER, KRUPS Record and TERRAILLON were all selling for the same price as before. PRESTIGE 950 was selling for 45 cents less than our purchase price but its normal retail price is now \$1.00 more than we paid. Prices of all other scales had risen by from 55 cents to \$2.70.

Recommended

<i>Wall or bench scales</i>	
EFFEM-8 Automatic	\$10.95
<i>Wall scales</i>	
KRUPS Record	\$12.45
PRESTIGE 950	\$14.95
<i>Bench scales</i>	
EFFEM Fit	\$ 5.95
SALTER Weighmix	\$10.50
TASMAN 710	\$ 3.95

Garden Fertilisers



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Fertiliser in itself is not a cure-all for every gardening problem. Plant diseases or insects may cause difficulties which have little or nothing to do with your soil composition and which cannot be remedied by applying fertiliser.

No matter how fertile soil may be, however, it cannot provide large quantities of the major plant nutrients year after year without replenishment. For most home gardeners, the most efficient way of replacing such nutrients or correcting soil deficiencies is by the application of a fertiliser. This report, then, brings you our findings on some of the "complete" garden fertilisers widely available in Australia.

Wild plants get nourishment from the decayed organic matter present in the soil but it is unlikely that the earth in a garden (much less a pot) contains the major nutrients in large enough quantities to support vigorous plant growth over a long period. With the right fertiliser you can supply those which are lacking, replenish depleted ones or even alter the basic soil composition to encourage the growth of plants which are not indigenous to the area.

Commercial garden fertilisers are not single purpose substances but a combination of chemicals in which each part of the combination reacts in a different way. In gardening terms, a "complete" fertiliser should contain compounds of three of the major plant nutrients — nitrogen, phosphorus and potassium (symbolised by the letters N, P and K respectively). The percentage of each element present in a fertiliser is usually given on the label as the N:P:K value.

Nitrogen

Nitrogen regulates the ability of plants to make protein and is most active in the young, fastest-growing parts. If a nitrogen deficiency exists, the older parts of the plant may turn yellow, old leaves may die and growth will be inhibited.

Nitrogen is usually applied in the form of soluble nitrate or ammonium compounds.

Phosphorus

Phosphorus is present in all living tissue and provides

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the mechanism by which energy is transferred within the plant. It is necessary for photosynthesis, strengthens root action and promotes fruiting. In acid or alkaline soils, compounds are present which react with soluble phosphates to form insoluble phosphate salts and restrict the phosphorus available to the plants. The phosphates should not be broadcast or sprayed over the area but concentrated a few inches to the side and below the seed level or around the periphery of roots.

Potassium

Potassium is essential to plant growth as it plays a key role in the manufacture and movement of protein, sugars and starch. It also helps plants resist disease. Much potassium which is present in the soil cannot be used by plants, but addition of soluble potassium makes absorption possible while establishing and maintaining a high overall level of the element.

Other elements

Plants may also benefit from the addition of calcium to the soil. In the form of lime, calcium reduces soil acidity. Other elements such as magnesium, sulphur and iron and small amounts of trace elements (boron, cobalt, copper and others) required by some plants are usually present in the soil in sufficient quantities without the need for extra additives.

Chemical and organic fertilisers

Some confusion exists regarding the terms "organic" and "chemical" in relation to fertilisers. In scientific terms, the word "organic" refers to chemical compounds which always contain carbon with such other elements as hydrogen, nitrogen and oxygen. In common usage, "organic" is employed to describe the decomposed remains and by-products of living substances; in the case of fertilisers, blood and bone mixtures, seaweed, cottonseed meal and manures would be included in this category. Most of these fertilisers have a fairly high content of one of the three main nutrients, but little or none of the other two. If your soil lacks a particular element, one of these fertilisers may be just what it needs.

Manures usually contain small amounts of all three major elements. They are liked by many gardeners in spite of their relatively low N:P:K value (usually about 1:1:1) because they help to hold and release nutrients in the soil and improve its openness and workability. Their presence also facilitates phosphorus absorption, so they are often mixed with superphosphate before application.

Fertilisers commonly considered organic or "natural" do not necessarily provide the required amounts nor correct proportions of nutrients for your garden, and some "chemical" fertilisers are actually "organic" in the scientific sense of the term. Whether the nutrients come from chemicals or

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ANIMEALS Nitrosol was one of the three water soluble liquid fertilisers.



AQUASOL, a water soluble powder, had a high N:P:K value.

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Brand	Price (\$)	Type	Quantity	N:P:K value measured	Insoluble nitrogen (per cent measured)	Cost to make** (cents)
ANIMEALS Nitrosol	0.99	liquid	1 pint (568 ml)	7.7:0.76:3.3	0	10.9
AQUASOL	1.45	powder	1 kg	20.4:6.2:14.8	0	70.7
AQUASOL Slow Release Plant Pills	0.60	pills	40	14.3:2.4:6.4	5.8	2.8
ATLAS Fish Emulsion Fertilizer	1.35	liquid	1 pint U.S. (454 ml)	5.3:0.6:1.0	0	6.0
GARDEN PRIDE	1.05	granules	2.5 kg	4.4:6.3:6.0	0.3	96.7
GRO-PLUS Complete Plant Food	1.10	granules	7 lb (3.2 kg)	7.5:5.6:4.1	0.2	121.0
HORTICO Complete Garden Food	1.15	granules	3 kg	5.9:4.2:9.5	0.1	135.7
LANE'S Soluble Fertilizer	0.95	powder	850 g	25.8:4.5:12.3	0	60.3
MAXI-CROP Seaweed Plant Food	0.85	liquid	8 fl oz (227 ml)	* : * : 0.2	0	0.1
PIKE'S Rite-Gro Slow Release Plant Pills	0.60	pills	33	12.7:2.4:5.3	4.5	2.4
SHIRLEY'S Banana Special All Purpose Plant Food	1.50	granules	5 kg	7.8:4.3:7.5	0.2	197.2
THRIVE	0.90	powder	681 g	38.7:0.1:7.6	0	47.5
YATES Slow Release Plant Pills	0.57	pills	35	14.0:2.3:6.2	5.8	2.4
ZEST Rapid Grow	0.77	powder	454 g	21.0:8.7:12.3	0	38.3

*Negligible amounts found

**Cost to make a mixture that will provide the same amount of nitrogen, phosphorus and potassium as claimed to be in the fertilisers.

natural materials makes absolutely no difference to your plants.

What we bought

With more than 40 different brands and types of fertiliser available, it is difficult to know which is most suitable for your soil and the plants you want to grow. We bought 14 of the most widely available "complete" fertilisers. Three were water soluble liquids, four water soluble powders, four granules for digging or spreading and watering in, and three were slow release pellets or pills. All claimed to encourage the growth of a wide variety of plants. The type, price and quantity of each fertiliser is given in the Table.

Claims, instructions and warnings

Each of the 14 fertilisers we purchased carried a claim of some kind, ranging from simple assertions that the product would "make plants grow" to specific claims of how much growth could be expected in a certain amount of time, how long the benefits from each application would last and the product's suitability for use with particular species of plants.

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All gave clear, comprehensive instructions for proper use and application.

ANIMEALS, MAXI-CROP, SHIRLEY'S, THRIVE and ZEST carried no warnings. All other brands had warnings against such things as poor storage, insufficient dilution of the product or incorrect application.

Packaging

The packaging of the fertilisers was acceptable — neither excessive nor inadequate.

Analysis

We had the fertilisers analysed to determine the percentages of total nitrogen, water insoluble nitrogen, phosphorus and potassium in each. The results are given in the Table. We found the stated percentages of the elements acceptably accurate when compared to the results of our analysis except in one instance. Our analysis of THRIVE revealed only 0.1 per cent of phosphorus instead of the stated 4.57 per cent.

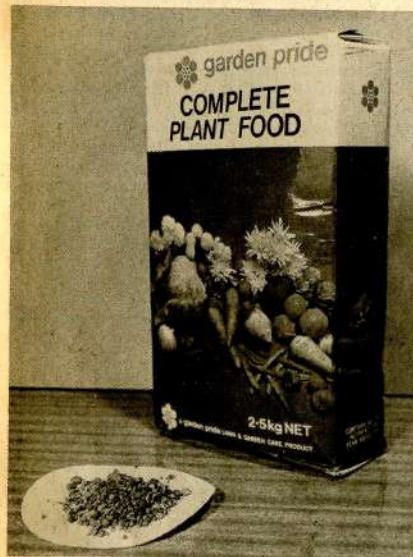
Cost

Ammonium nitrate is a good source of nitrogen and

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The fertilisers which were supplied as pills contained the greatest amounts of water insoluble nitrogen which is made available to the plants gradually.



GARDEN PRIDE was purchased in a 2.5 kg package and was less than 10 cents more expensive than the mixture we made up with the same N:P:K value.

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double superphosphate and muriate of potash will provide phosphorus and potassium respectively in a form which plants can utilize. All three compounds can be bought in bulk but only muriate of potash is readily available in small quantities. Ordinary superphosphate, which is a useful substitute for double superphosphate even though it contains only half the amount of phosphorus, and ammonium sulphate can both be bought in small quantities.

We calculated the cost to the home gardener of using ammonium sulphate, muriate of potash and superphosphate to make up mixtures with the same N:P:K value as each of the fertilisers claimed to contain. Our costs were based on the prices of 85 cents for 3.2 kg (seven pounds) of ammonium sulphate, 85 cents for the same amount of superphosphate and 65 cents for 0.9 kg (two pounds) of potash.

In most cases we were able to make up mixtures with the claimed amounts of the three essential elements for a lower price than we paid for the fertilisers. Only those we bought in packages larger than three kg were cheaper than our mixtures. The mixtures can be made even more cheaply if ammonium nitrate, double superphosphate and potash are bought in bulk and the prices for 50 kg of each of these at the time of writing were \$8.75, \$4.60 and \$5.40 respectively.

Pre-publication check

We were informed that LANE'S Soluble Fertilizer had been discontinued and several other fertilisers were being sold in different quantities. MAXI-CROP cost 85 cents for 250 ml, THRIVE cost \$1.10 but for a pack of 700 g and ZEST was \$1.10 but the package size was 500 g. AQUASOL and GARDEN PRIDE were found at lower prices than we originally paid (10 cents and 16 cents respectively). Prices of all other fertilisers had risen by from 10 cents to 35 cents. PIKE'S price had risen by 10 cents for 33 pills but we found packages of 100 pills for \$1.25.

Conclusion

Most of the packaged fertilisers gave comprehensive instructions regarding methods and frequency of application. A basic handbook on home gardening will give you further advice.

When you know the approximate nutrients needed by the plants you want to grow, you can choose a suitable fertiliser by comparing its N:P:K ratio with your requirements. If you will be using large amounts, we suggest that you purchase bulk components and mix them to suit your needs. If a certain fertiliser is recommended to you, you can note its N:P:K value and make a similar mixture from the bulk components.

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Instant Cooling Packs



Instant acting cooling packs that will cool food and drink anywhere and at any time are sure to have a great appeal to campers, fishermen, motorists and yachtsmen. But are they as useful as they sound? In order to assess their worth, two packs which claim to be the modern method of keeping food and drink cold away from home have been tested by ACA.

In CHOICE, February, 1961, a number of packs, which had to be placed in a refrigerator before use, were described. Now we have examined packs which rely on a chemical reaction for the cooling effect.

What we bought

In our market survey we found only two cooling packs which provide cooling without prior refrigeration and we bought both. The one kg bag of ICE-O-MAGIC was bought for 60 cents and a box of TRICE, which gave no indication of its mass, for 70 cents.

Although these packs were intended to do the same job the packaging was different. ICE-O-MAGIC was received in a large resealable plastic bag containing some pale brown granules. The pack was activated by adding water.

TRICE was supplied in a cardboard box containing a plastic bag, inside which were white granules and a smaller plastic bag containing a blue liquid. To activate TRICE the outer bag was struck with a fist until the inner bag burst. The bag was then shaken to mix the contents.

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Each pack was supplied with quite comprehensive instructions for use and warnings not to eat food that had been contaminated by the contents as a result of leakage. ICE-O-MAGIC claimed to contain ammonium nitrate and although TRICE gave no indication of its composition it was claimed to make an ideal fertiliser after use. A test conducted by Canberra Consumers Incorporated showed, however, that the use of TRICE inhibited the growth of wheat seedlings. Better results were obtained when the seedlings were treated with water and a complete fertilizer or with water alone.

Testing

Both cooling packs work on the principle that some chemicals absorb heat when dissolved in water. The inner bag of the TRICE package appeared to contain only dyed water and the two packs operated in the same way with only the method of application of water to the chemicals being different.

The granules supplied with ICE-O-MAGIC had a mass of about one kg while the mass of the TRICE pack, including the dyed water, was about 0.7 kg.

When activated, each pack did provide a cooling effect, and that of the larger ICE-O-MAGIC pack was greater than TRICE's. Further tests were made in a calorimeter so that precise figures could be obtained for each pack. ICE-O-MAGIC had a cooling capacity almost four times as great as that of TRICE but only half that of the same mass of ice. When compared on a cost basis for equivalent cooling capacities (cost per kilocalorie absorbed), ICE-O-MAGIC was 10 times and TRICE was about 40 times more expensive than commercial party ice.

Conclusions

The cooler packs, then, were very costly and not nearly as effective as ice. Even commercial party ice, which is supplied in cubes, provided an equivalent cooling effect at a far lower price.

The only advantage of the cooler packs is that they can be activated when miles away from the nearest refrigerator; but, in most cases, an insulated container and ice will be the best way of keeping food and drink cool. Freezing cans of beer or soft drink and adding them to the container is an effective way of providing extra cooling and, once thawed, they may be consumed on the spot.

CHOICE, January 1975

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The list of issues which interest us is contained in CHOICE, January 1975

BRAUN Blender

Although the distributor of the BRAUN blender informed ACA that the BRAUN MX 32 had been discontinued (CHOICE, July, 1974) the manufacturer has informed us that this is not the case. While there was a shortage of these blenders for some months, this model should now be available again.

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Insta



Instant acting cold packs have a great appeal to yachtsmen. But in order to assess them, they must be the modern, cold away from home. In CHOICE, which had to be described, we were described, rely on a chemical.

What we bought In our market packs which refrigeration and ICE-O-MAGIC was TRICE, which gave cents.

Although the same job the packaging was different. ICE-O-MAGIC was received in a large resealable plastic bag containing some pale brown granules. The pack was activated by adding water.

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Members who live in these cities may contact their own local group at the following addresses:

The Honorary Secretary, Canberra Consumers Inc., P.O. Box 591, Canberra City, A.C.T. 2601.

The Honorary Secretary, Central Queensland Consumers' Association, P.O. Box 812, Rockhampton, Queensland 4700.

The Honorary Secretary, Hobart Consumers' Group, Box 1223M, G.P.O., Hobart, Tasmania 7001.

The Honorary Secretary, Consumers' Association of Victoria, Box 1121J, Melbourne 3001.

The Honorary Secretary, Association for Consumer Education, Box 43, P.O., Newcastle West, N.S.W. 2302.

The Honorary Secretary, Citizen Action Federation, G.P.O. Box 1547, Melbourne, 3001.

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which is supplied in cubes, provided an equivalent cooling effect at a far lower price.

The only advantage of the cooler packs is that they can be activated when miles away from the nearest refrigerator; but, in most cases, an insulated container and ice will be the best way of keeping food and drink cool. Freezing cans of beer or soft drink and adding them to the container is an effective way of providing extra cooling and, once thawed, they may be consumed on the spot.

CHOICE, January 1975

Readers Write

We have read with interest your comprehensive report on portable electric welders in the August 1974 issue and agree in principle with your comments.

We were a little embarrassed but nevertheless grateful that you have pointed out a weakness in the wording of our guarantee card which states that if a welder has to be returned for service, all transportation charges are to be paid by the customer and that the article must be returned directly to our factory at Alexandria.

In fact, provided the machine has not been misused, we only expect a customer to return it to the nearest capital city at his expense and we return it to him at our expense. If the welder must be returned

from say Perth to Sydney because repairs are of such a nature that they cannot be made in that city, we stand the freight cost. We also cover mechanical defects in our warranty although the guarantee states that only electrical failure is covered.

Following your article we will be revising our guarantee card wording but we would be pleased if you could publish this letter for the benefit of any of our customers who may have bought a machine and have some doubts about the terms of warranty for it.

Abel Arc Australia Proprietary Limited.
All owners of ABEL welders will appreciate the clarification of the guarantee conditions as expressed in this letter.

With reference to the recent article on powdered milk, a few drops of vanilla added to the mixture improves the flavour and makes the mix more palatable.

J.Q.E., A.C.T.

We thank our member for this comment. Our report on processed milk (CHOICE, July, 1974) included the result of a taste test in which our panel found that some samples were unpalatable but that some tasted as good as our reference samples of fresh milk.

For those people who would like to use processed milk but find the mixtures unpalatable, our member's suggestion may offer a simple solution.

WANTED, out-of-print issues of CHOICE

ACA requires copies of out-of-print issues of CHOICE to supplement its library. The issues, which will be bound, are to be retained as a permanent reference for ACA and its members.

If you have out-of-print issues of CHOICE which you no longer require, we will be pleased if you can send them to us. Postal charges will be repaid by ACA or, if you require some other back copy of CHOICE, we will replace your out-of-print issue with the copy you require, provided, of course, that it is not out-of-print too.

The list of issues which interest us is contained in CHOICE, January 1975

the yellow insert form in this issue. Your co-operation will be appreciated and will benefit all members of ACA.

BRAUN Blender

Although the distributor of the BRAUN blender informed ACA that the BRAUN MX 32 had been discontinued (CHOICE, July, 1974) the manufacturer has informed us that this is not the case. While there was a shortage of these blenders for some months, this model should now be available again.

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Jottings

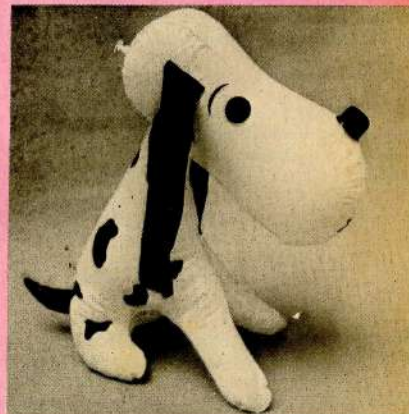
ANOTHER POTENTIAL HAZARD IN CHILDREN'S TOYS

Most inflatable plastic toys have a small plastic stopper to plug the mouthpiece when the toy is blown up. Small children can often chew through the strip of thin plastic which attaches the stopper to the body of the toy, with the consequent risk of swallowing or inhaling the stopper. If the stopper is big enough, swallowing it may cause choking. Its inhalation, though less likely, may have very serious and possibly fatal consequences.

We contacted a number of children's hospitals to enquire about their experiences with such accidents and were informed that though rare, they were by no means unknown. A matron of one of the hospitals

informed us that she did not allow any such toys in the hospital because of the potential hazard presented by the particular feature of the toys.

We are reluctant to make a blanket condemnation of these inflatable toys as they are generally inexpensive and appealing to children because they are bright, soft and easy to handle. However, we feel we should point out the possible danger to parents so they can keep an eye on the condition of the connecting plastic strip or perhaps seal the stopper in place with adhesive tape when the toy is inflated.



POTATO CRISPS

The manufacturer of STAR Potato Crisps has informed us that the STAR bulk pack contains 2½ pounds (1.13 kg) of crisps while the packs bought and tested by ACA (CHOICE, November, 1974)

contained only 230 gm.

A check revealed that the retailer had broken down bulk packs into the smaller packages that we had bought.

CHOICE, January 1975

HOME FINANCE

Our article in July CHOICE about Mutual Home Loan Funds warned of the dangers of one form of home finance where people enter contracts without first consulting a solicitor.

The Glebe controversy in September in Sydney was yet another example of the dangers of entering finance and purchase contracts without prior advice.

The financing and purchase of a house, unit or land is a very complex matter legally, much more complex than a hire purchase contract involving a car. With the shortage of finance for housing, people have entered a variety of unusual contracts without advice, and without fully appreciating what they were getting

into. Many have lost thousands of dollars.

ACA urges its members NOT to enter any contract or to sign any document for the financing or purchase of a house or land without first consulting a solicitor. When you do get legal advice you should not ignore it: many of the people who have found themselves in legal trouble in recent times have either *not* obtained legal advice or have *ignored* it. You should also ensure that you employ your own solicitor, rather than rely on the finance company's or seller's solicitor, since solicitors can find themselves with a conflict of interests when they act for both sides in a transaction.

COMPANY REVISES PACKAGING FOR ACCURACY

The consumer movement is growing and gaining acceptance from increasingly broader segments of the public, manufacturing interests and government. We tend to notice the large concessions granted or the legislation passed when, after much hard work by many people, some of our primary objectives are gained.

But the real power of the consumer movement comes from you, the individual. Every time you refuse to buy shoddy or dangerous products, or insist on a reasonable guarantee and proper service, or pass along your experience with any product or service to another consumer, you benefit others. Sometimes individuals score victories which are perhaps small in themselves, but they carry all of us a step further toward proper labelling, truthful advertising and better consumer protection.

An ACA member recently complained to Wattie Pict Ltd. about its packaging of flounder fillets. All the packages carried the words "4 Frozen Crumbed Flounder Fillets" and showed a picture of four individually wrapped fillets. Two of the four packages bought by our member, however, contained only three fillets. Although the weight of the fish was correct as stated on the package, the discrepancy could be inconvenient when planning a certain number of serves and besides, the labelling was simply untrue in these cases.

Wattie Pict Ltd. responded to our enquiry on this matter and stated that "this fault has been rectified in all Wattie crumbed flounder coming forward now as the wording 'four' has been deleted from the packets".

Small — but encouraging.

WALL HOOKS AND ADHESIVES

In the report on wall hooks and adhesives (CHOICE, October, 1974) it was stated that neither of the MAGIC MOUNTS double sided tags specified a load. The instructions for each did, however, state "average" guides. The package for the six inch (15.2 cm) strips included the statement "As an average guide, one MAGIC MOUNTS 'STRIP' will support one-half pound of accessory" and the package for the half inch (1.3 cm) tags stated "as an average guide use one MAGIC MOUNT per 1/8 lb of accessory (however, always use at least 2 — and even more ... for proper balance, even on very light objects)".

CHOICE, January 1975

We have found that the price of a packet of three MIRACLE GRIP adhesive backed cloth tags with a metal hook has risen by 40 per cent, from 25 cents to 35 cents.

PAINT PADS

In the pre-publication check for ACA's report on paint tools (CHOICE, October, 1974) it was stated that the price for replacement pads for the 4 inch by 6 inch PETER PAINT PADS' frame sold for \$3.65. Further checks have revealed that these replacement pads are retailing for \$1.25 and not for the higher price that we were previously quoted.

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The references to tests or comments on any product or products in this journal relate only to the product or products examined by ACA and not to any other product of the same or similar description. ACA does not necessarily test every product available in any particular class of goods.

All goods to be tested are bought anonymously and none is accepted from the manufacturers. All prices are those paid by ACA at the time of purchase and may vary from place to place and from time to time.

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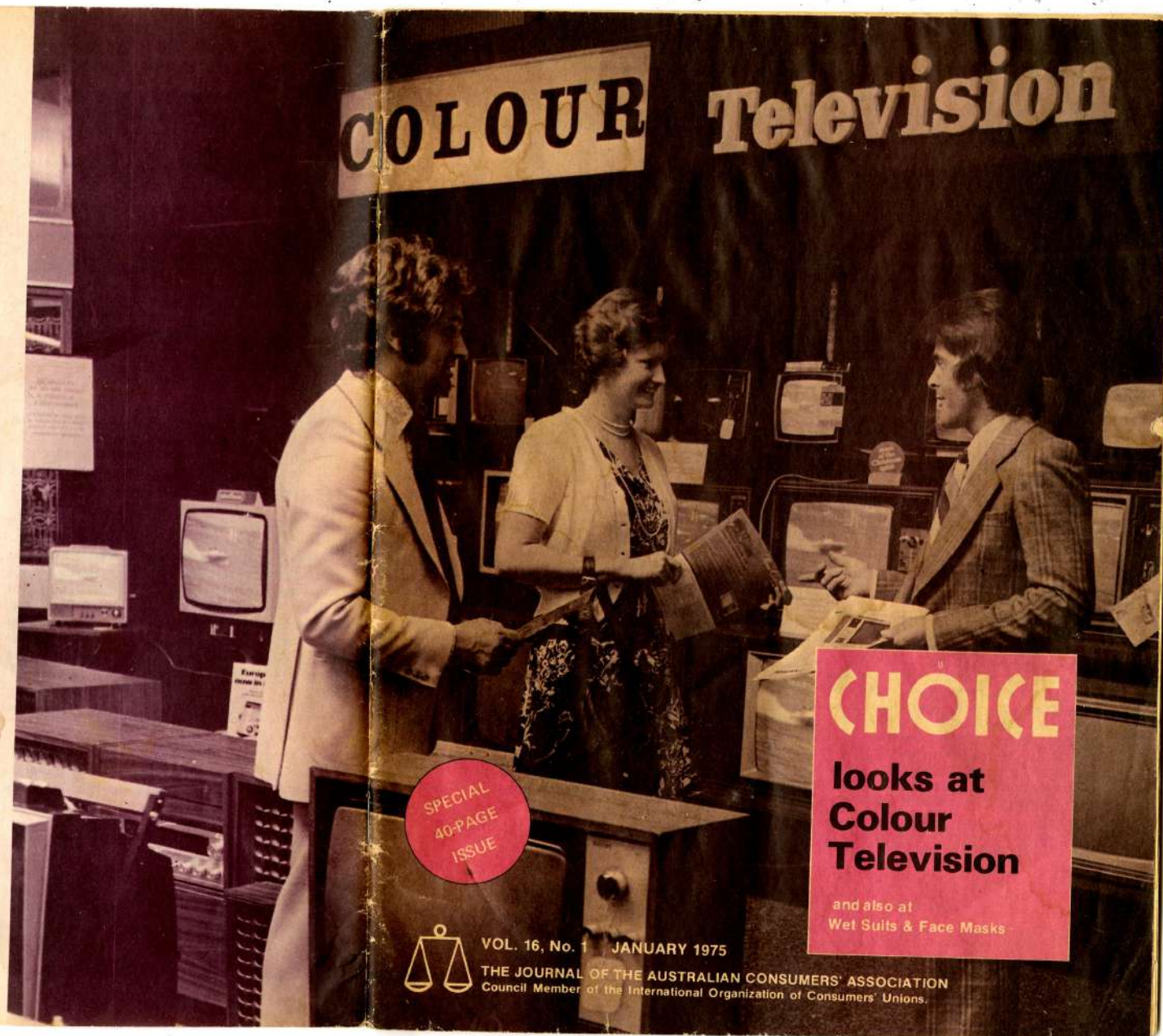
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COLOUR Television

CHOICE

looks at Colour Television

and also at
Wet Suits & Face Masks



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